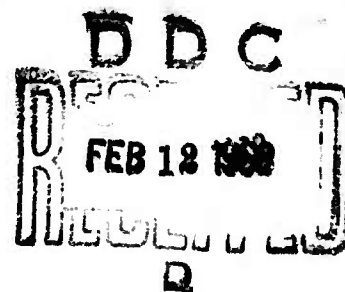MEMORANDUM
RM-5310-PR/ISA
JANUARY 1968

LATIN AMERICAN
DEFENSE EXPENDITURES, 1938-1965

Joseph E. Loftus

PREPARED FOR:

UNITED STATES AIR FORCE PROJECT RAND
AND
THE OFFICE OF THE ASSISTANT SECRETARY
OF DEFENSE/INTERNATIONAL SECURITY AFFAIRS

The RAND *Corporation*

SANTA MONICA • CALIFORNIA

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PREFACE

In 1964 RAND began a research program on socio-economic problems in Latin America, jointly sponsored by Air Force Project RAND and the Office of the Assistant Secretary of Defense, International Security Affairs. The study reported cn in this Memorandum is a contribution to this program.

Initially, the objective of the Memorandum was quite modest. In view of the paucity of unclassified information, systematically organized and carefully evaluated, on Latin American defense expenditures, it was felt that a compilation of basic data oriented toward measuring Latin American defense expenditures, country by country and year by year over approximately a three-decade period, would be useful to the RAND program. A preliminary set of measurements of expenditures was prepared in tabular form and distributed within RAND in mid-1965 for the use of persons engaged in the Latin American studies program.

The feeling grew that this study might be useful, as well, to various parts of the government and the academic community. The result is the present Memorandum -- a greatly extended variant of the original effort. In it, the author goes beyond his original objective of measuring Latin American defense expenditures in a systematic fashion to comment on the significance of the measurements and to identify subjects for possible future research. But in the process, he has stopped far short of doing as complete and definitive an analysis as he would have preferred. This decision was made in recognition of the need for timely distribution of the material to an audience concerned with current policy deliberations on Latin American questions.

For the deficiencies of the study, the author alone accepts responsibility. But for what is empirically useful and analytically stimulating, the debt of the author is large. Within RAND, the author wishes to acknowledge the assistance of Luigi Einaudi, Catherine Exton, Herbert Goldhamer, Leland Johnson, Burton Klein, Richard Maullin, Richard Nelson, Malcolm Palmatier, Rear Adm. Paul A. Smith (Ret.), Alfred Stepan, John Surmeier, and Eleanor Wainstein. The author is

SUMMARY

This study is based largely upon data published in the various editions of the United Nations Statistical Yearbook since 1948. Since there are sizable uncertainties -- owing to probable incomparabilities in the information reported by individual countries under the heading of "defense" expenditures -- the reader and user of this document is cautioned that the measurements of defense expenditures found throughout the text are limited to the reliability of the Statistical Yearbook data. Until detailed country-by-country research using the finance and defense ministerial data of those countries is undertaken, that source book is the best and only starting point for a systematic, internally consistent effort to measure Latin American defense expenditures over an extended period of time.

The measurements in the study have the further limitation -- true of all studies involving international comparisons -- of reducing the various local currencies of countries with violent problems of inflation and deflation to some constant, consistent unit of measure. In this study all data have been reduced to constant 1960 U.S. dollars. The methods of reduction to this common unit of measure have been made explicit in the text, and, where feasible, sensitivity tests have been run.

In view of these two basic problems, the defense-expenditure measurements given here have been subjected to five different tests for credibility. To the extent that these five tests (no others were available) are reasonable, it is felt that the measurements in this Memorandum are at least as good as other measurements of Latin American defense expenditures publicly available, if not significantly better.

The results of the study can best be summarized under four headings: (1) the principal findings from the measurements; (2) the results of a partial analysis of two hypotheses commonly employed to explain the behavior of Latin American defense expenditures; (3) some recommendations for future research; and (4) a suggestion for improving the data reporting of the U.S. Agency for International Development.

THE MEASUREMENTS

1. It is sometimes stated that Latin American defense expenditures have reached levels as high as $2 billion per year. According to the data of the present study, defense spending reached a peak level of about $1.4 billion in 1958, declined thereafter to about $1.2 billion, and turned upward significantly in 1964 and 1965 to about $1.4 billion. Given this upturn in 1964 and 1965, the following years should be studied carefully as new data become available.

2. Contrary to the commonly held view that total Latin American defense expenditures have grown "tremendously" since the late 1930s, the measurements suggest at most a doubling, with much of the increase having taken place between the pre-war years and the end of World War II. This doubling is significantly less than the growth experienced by most other countries of the world, including countries of long-standing internal political stability and minimum involvement in World War II and the subsequent "cold war." Of the non-Latin American countries studied, only Sweden and Switzerland controlled their defense expenditures more tightly: Switzerland's expenditures actually declined over the three-decade period, and Sweden's rose only very slightly.

3. Traditionally, Argentina, Brazil, and Chile have been considered to be the major Latin American military powers. To the extent that defense expenditures are a partial measure of military power, Argentina and Brazil (in that order, but extremely close together) are still the leading defense spenders. Chile, however, has been surpassed by Venezuela (in 1956) and Mexico (in 1963); and if present trends continue, it will probably be surpassed on a continuing basis by Colombia in 1966 or 1967. By the early 1970s, Venezuela is very likely to be the leading defense spender in Latin America.

4. Apropos of the ratio of defense expenditures to total governmental expenditures, the measurements in this study suggest the following:

   o That even though in the late 1930s and early 1940s the ratio on the average was high (17.9 and 21.0 percent,

respectively), it was not near'y so high as has generally been believed. Moreover, even then, it was less than that of some other countries of the world. To cite an extreme example, the corresponding figures for Switzerland were 61.4 and 46.5 percent, respectively. This comparison dramatizes serious conceptual problems about the relevance and usefulness of measuring defense expenditures as a percentage of total government expenditures. (These conceptual problems are discussed in Sect. IV.)

o That for Latin America as a whole (and for most of the component countries) the ratio has declined over the three-decade period studied to an average level in the 1960s of 14 percent.

o That the use of averages for Latin America as a whole obscures individual country highs and lows. These range from a high of 45.2 percent in Brazil in 1943 (largely because of its heavy involvement in World War II) to a low of 2.6 percent in Bolivia in 1960.

o That in some countries, for reasons that are unclear, the ratio has tended to be very stable over an extended period. An interesting example is Venezuela, where the annual percentage has varied annually very little around an average annual figure of 9 to 10 percent. On the other hand, in other countries, again for reasons that are unclear, the ratio has tended to be very unstable over an extended period of time. An example is Colombia, where the figure has fluctuated frequently in the 1950s and 1960s -- from a low of 15.7 percent in 1950 to a high of 26.3 percent in 1954.

o To the extent that defense spending as a percentage of gross national product is a good measure of the economic burden of defense on a country, most Latin American countries have a significantly lower percentage than most other developed and underdeveloped economies in the world.

HYPOTHESES

o A commonly held hypothesis about Latin American defense expenditures is that they are importantly affected by internal political instabilities. This hypothesis was examined in detail in the case of Venezuela. It was concluded that there is indeed a strong interaction between internal political instabilities and defense expenditures, but that this interaction is more complex than is generally believed.

o Another such hypothesis is that the fear or actual occurrence of a border conflict affects defense expenditures importantly. This hypothesis was examined in four cases. The results suggest that there may be some limited interaction and that the interaction is, again, complex.

o In the examination of both hypotheses, it was concluded that better inputs and better analytical techniques are needed to advance the understanding of these complex interactions.

FUTURE RESEARCH

The following subjects are recommended for future research:

1. Improving and enriching the numerical data on Latin American defense expenditures.

2. Improving the knowledge of internal domestic conflicts and stresses in individual Latin American countries, and their effects on the defense expenditures of those countries.

3. Improving the knowledge of border conflicts and their effects on defense expenditures.

4. Helping improve cost-benefit decisions on military expenditures within Latin American countries, and U.S. decisions to supply military and economic aid.

5. Finally, making selected, in-depth country studies. Although all twenty countries in Latin America need this kind of research attention, some countries merit priority in the allocation of scarce research resources. Venezuela, Colombia, Mexico, and Chile might well be such countries -- in addition to Peru and Brazil, where RAND research on the roles of the military is already well underway.

IMPROVED DATA REPORTING

The usefulness and comprehensiveness of the data on Latin American defense expenditures in the United Nations Statistical Yearbook are impressive. However, as a source book, the Statistical Yearbook lacks real timeliness. For example, the 1966 edition did not become available

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I. INTRODUCTION

Despite long-standing U.S. interest and concern with Latin American defense expenditures, little has been done in this country to pull together in systematic form for evaluation the body of data, covering the past three decades, readily available in open, secondary sources. To this author's knowledge, only one such effort has been made: a study conducted by H. Roberts Coward in 1963-1964 at the Center for International Studies, Massachusetts Institute of Technology.[1] Although this study was unquestionably a pioneering effort in the field, it leaves much to be desired.[2]

Ideally, in a study of this sort, one would, of course, rely heavily on data published by the individual countries in their open governmental literature -- that is, on primary sources. Such an approach, however, would be extremely difficult for a variety of reasons.

> o Just collecting all the pertinent government publications covering three decades would take a considerable amount of time and effort. It is probable that many of them are not available in the United States; those that are available are likely to be widely scattered.

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[1] H. Roberts Coward, _Military Technology in Developing Countries_ (Cambridge, Mass.: MIT Press, 1964), Appendix II, various pages.

[2] The principal deficiencies in the Coward study are as follows: (a) Its time span is confined to the period roughly from 1955 to 1962, in most cases. (b) In the later years of its time span, it treats too indiscriminately the difference between "actual" expenditures and "voted" or "estimated" estimates, as published in such documents as the United Nations _Statistical Yearbook_ and the Pan American Union's _América en Cifras_. This difference is discussed in detail in Appendix G of this Memorandum. (c) In converting local currencies to dollars, the Coward study merely applies to each year's data in local currency the mid-year (or average) rate of exchange of the particular national currency with U.S. dollars. As pointed out below, this conversion process does not adequately cope with the problem of inflation and deflation in these countries. (Admittedly the conversion problem can never be satisfactorily resolved, but one can do better than this.) (d) Since the work is primarily a compendium of numerical data, scant attention is given to examining and making explicit the behavioral characteristics of the data over time and from country to country, and their possible implications.

o There are great differences from country to country with
respect to what is published, how it is reported, the
time periods it covers, the taxonomic techniques it uses,
and so on.

o Some Latin American countries have, from time to time,
imposed and enforced strict legislation and regulations
designed to preserve the security of military matters.[1]
However, it should be noted that others, such as
Venezuela, Brazil, and Chile, make extensive economic
data available to the public through their finance and
defense ministries.

Despite these difficulties, an effort is underway at RAND to
study such publicly available, indigenous country materials. Already
the exploratory work has revealed the existence of a sizable volume of
military journals. The resulting report[2] cites and annotates 96 such
sources, and suggests the possible existence of half again as many
more open military journals. In addition, there is a large corpus of

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[1]For a good brief discussion of Argentine practices with respect
to preventing espionage and sabotage, see George Pendle, Argentina
(London: Oxford University Press, 1963), pp. 113-114:

Peron then proceeded to protect his regime against too
violent criticism in and outside Congress by strengthening
two laws (which were already in existence) against lese-
majesté and treason. The first of these laws -- the statute
against desacato or "disrespect" -- was amended in October
1949 so as to prohibit the public utterance of expressions
of disrespect concerning not only the President of the repub-
lic but also the regime and its officials. Desacato was
defined as "anything which offends the dignity of any public
official, whether the statement refers directly to the person
or by allusion to him or the governmental organization of which
he forms a part." Penalties under this law ranged from two
months' to three years' imprisonment. In September 1950
another statute of a similar nature was rendered more severe,
the ostensible purpose being to punish espionage, sabotage,
and treason. Under this law the following maximum penalties
were established. For obtaining or revealing political,
social, military, or economic secrets involving the security
of the state: ten years' imprisonment in peace-time and life
imprisonment or death during war; for sabotage generally:
twenty-five years' imprisonment in peace-time and death during
war; for causing public alarm or despondency: eight years
imprisonment.

[2]Luigi Einaudi and Herbert Goldhamer, An Annotated Bibliography
of Latin American Military Journals, The RAND Corporation,
RM-4890-RC, December 1965.

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unexplored parliamentary and ministerial publications of the Latin
American countries. In some countries, laws and decrees regulating
the military establishment provide detailed pay schedules, pensions,
and other supplementary forms of income by grade for enlisted men and
officers. RAND has already published analyses of specialized aspects
of the public law of the military in selected Latin American countries.[1]

Supplementing legal materials with equally voluminous economic
data (including detailed data on defense appropriations and expendi-
tures), RAND is developing techniques to deal with the interactions
of social, economic, and political factors on the multiple roles of
the Latin American military. Independent monographs are in prepara-
tion on Peru and Brazil.

THE USE OF SECONDARY SOURCES OF MONETARY DATA

As an interim measure, the present study was developed entirely
from secondary sources of defense-expenditure and other monetary data.
Appendix A discusses the secondary sources in detail, their primary
avenues of information, and their characteristics and limitations.
The principal source used throughout was the various annual editions
of the United Nations Statistical Yearbook.[2] It provided the best
single source of continuous and fairly consistent data from 1938 to
1965; accordingly, it was the data framework around which the study
was built. In the few cases of deficiencies in the various editions
of the Statistical Yearbook, some reliance was placed upon various
editions of América en Cifras[3] and the single (1940) edition of the

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[1] See, for example: Boris Kozolchyk, Legal Aspects of the Acquisi-
tion of Major Weapons by Six Latin American Countries, The RAND Corpo-
ration, RM-5349-1-ISA, December 1967; and, by the same author, Legal
Foundations of Military Life in Colombia, The RAND Corporation,
RM-5172-PR, February 1967.

[2] United Nations Statistical Office -- Department of Economic and
Social Affairs, Statistical Yearbook (New York: 1948 and annually
thereafter).

[3] Pan American Union, Department of Statistics, América en Cifras
(Washington, D.C.: 1961, 1963, and 1965 editions).

Interamerican Statistical Yearbook.[1] Where data gaps have been filled
from these sources, appropriate notation has been made in the basic
tables.

THE MEANING OF DEFENSE EXPENDITURES IN THE SECONDARY DATA

In all three secondary sources, defense expenditures are presented
in the budget as single-line entries entitled "Defense." No data are
presented in terms of the allocation of funds to particular military
organizations or particular missions, or in terms of the purposes of
the defense budget. No indication is given as to how defense expendi-
tures are distributed among major categories (pay and subsistence,
procurement, maintenance and operation, and so forth). Finally, no
indication is given as to the extent to which total defense expenditures
involve the disbursement of foreign exchange as distinguished from
indigenous-country money.

But much more troublesome than this are the following specific
kinds of uncertainties:

o Do "defense expenditures" include payments for military
   pensions? We have reason to suspect that Chile excludes
   such payments. And it is almost a certainty that Colombia
   excludes such payments, because of its unique retirement
   fund arrangements.[2]

o Where a military establishment performs both military and
   non-military functions, does the budget include all (or,
   if not, how much?) of that ministry's expenditures under
   the functional category "defense?" For example, in the
   case of Brazil, the Air Ministry not only operates a
   military air force but also is responsible for the safe
   operation and supervision of civilian and commercial
   aviation. So, for Brazil, it is important to know
   whether all of the Air Ministry's expenditures (as some
   analysts believe) are included under "defense," or
   whether some proration is made.

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[1]Raul C. Migone (Director), Interamerican Statistical Yearbook
(New York: MacMillan, 1940), pp. 512-541. No further editions or
revisions have been published.

[2]See [12, pp. 52-54.]

o Do defense expenditures include only expenditures from
country funds, or do they include expenditures from other
sources (for example, legal funds, Military Assistance
Program (MAP) funds, and the like)?

o Do defense expenditures include all expenditures, or are
some hidden because the financing of particular outlays
was accomplished privately and financed by secret transfer
of funds from other ministries' resources or from private
presidential funds?[1]

We know that over the years the Statistical Office of the United

Nations has been striving to get more complete, more uniform, more

precise "defense" data from the various countries of the world, but

we have no sure idea how successful they have been. This continuing

effort to improve the data introduces, by itself, an element of uncer-

tainty into intertemporal studies because of the likelihood of incom-

parabilities between data developed for recent years and data developed

in earlier editions of the Statistical Yearbook.

In this study, nothing has been done to try to take into account

these various uncertainties. We have used the data exactly as pre-

sented in the United Nations Statistical Yearbook. Therefore, the

reader of this Memorandum is cautioned, with emphasis, that all its

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[1]See, for example, the work of one analyst who has given great
attention to Latin American defense expenditures -- Edwin Lieuwen.
In his Arms and Politics in Latin America (New York: Praeger, 1961),
pp. 147-151, he states that defense appropriations to the armed forces
have exceeded stated appropriations by about 5 percent of the total
budget. Specifically: "Official figures of war and navy departments,
however, do not tell the whole story. Sizable appropriations for the
armed forces, amounting to perhaps 5 percent of the total budget,
were often concealed in appropriations for the ministries of interior,
public works, and communications."
What worries us about this statement is that Lieuwen seems here
to assume that what is reported in central government functional
expenditures under defense is simply the arithmetical sum of the
expenditures reported by the "war and navy departments" [plus the
Air Ministries]. From what little we have been able to research on
this question, it is our belief that in most countries -- particularly
in recent years as United Nations Statistical Office practices have
been adopted -- quite the opposite is the case: expenditures reported
under the functional rubric "Defense" tend to exceed the arithmetic
sum of the reported expenditures of the three traditional defense
ministries.

numerical measurements, observations, and conclusions are ultimately
limited to the imperfections, non-comparabilities, and uncertainties
of the United Nations data on "Defense" expenditures.

Lest the reader be discouraged at this point by remembering
Western scholars' difficulties with the single-line entry "Defense"
that has so long and persistently characterized Soviet public defense
budget statements,[1] the author wishes to state emphatically that the
Latin American defense-expenditure situation, generally speaking, is
far less bleak than the Soviet situation. This confidence is based on
two related considerations:

First, American scholars in the past have never really tried to
come to grips with Latin American defense expenditures as discussed
and revealed in the open Latin American literature.

Second, as indicated earlier, the exploratory work now going on
at RAND in the primary data gives some grounds for optimism that many
of these uncertainties and imperfections will be remedied by the
systematic analysis of primary published sources of economic informa-
tion, for at least some of the major Latin American countries.

LOCAL UNITS AND 1960 U.S. DOLLARS

All of the basic data are expressed in the secondary sources in
terms of local currencies at current prices. Where the use of such
financial units was conceptually desirable and convenient (for example,
in the computation of military expenditures as a percentage of total
government expenditures), they were employed in this form.

However, where interyear and intercountry comparison required
reduction to some common unit, the local-currency-at-current-prices
data were converted into 1960 U.S. dollars. The year 1960 was chosen
to connect the calculations in this Memorandum with those of earlier
RAND studies of Latin American economic and military aid programs
[35][36].

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[1]See, for example, Abraham Becker, <u>Soviet Military Outlays Since
1955</u>, The RAND Corporation, RM-3886-PR, June 1964.

In making the conversion from local currencies at current prices
to constant 1960 U.S. dollars, there were the usual knotty (never
satisfactorily resolvable) problems. Essentially the method employed
was as follows.

First, local current currencies were reduced to local 1960 constant
currencies. For Latin America, three price indexes were available:[1]
a wholesale price index, a mixed-basket consumers' price index, and a
food-only price index. The last was used, reluctantly, throughout,
primarily because it was available for most countries and for the
longest periods of time. Since the results of the numerical calcula-
tions are sensitive to this choice, examples have been included
(Appendix E) of significant differences obtained by using the other
two indexes.

Local currency figures deflated into constant 1960 local prices
were then translated into constant 1960 U.S. dollars by using the
official exchange rates for 1960.[2] In Brazil, where two official
exchange rates existed, the 90-to-1 rate was avoided because of its
obvious use by the Brazilian government as an instrument for manipulat-
ing the local coffee industry.

Unlike the case of alternative price indexes, no sensitivity tests
were made on exchange rates. There is little to be learned by running
sensitivity checks until more is known about the extent, timing, terms
of payment, and other details of equipment purchased by Latin American
countries from foreign suppliers.

CREDIBILITY OF THE CALCULATIONS

When the basic measurements shown below in Sect. II were completed,
five tests for credibility were applied. Although the tests were not,
in our judgment, anywhere near so severe and exacting as we would have

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[1]That is, in the various editions of the United Nations
Statistical Yearbook.

[2]International Monetary Fund, International Financial Statistics,
Washington, D.C., XIX:10 (October 1966), p. 25.

liked them to be, they were the only ones available. In terms of
these five tests, it would appear that the basic measurements in
Sect. II are at least as good as, if not significantly better than,
any other series of such measurements currently publicly available.
For details, see the discussion in Appendix F.

NON-MONETARY DATA

From time to time throughout the Memorandum, non-economic data
are employed. Where the derivation of such data is critical to the
argument, recourse is had to detailed discussion in separate appendixes.
For example, the derivation of estimates of the number of members of
the armed forces is described in detail in Appendix D. The derivation
of data on the occurrence and duration of internal political insta-
bilities is described in Appendix B. The derivation of data on border
conflicts between Latin American countries is described in Appendix C.

II. LATIN AMERICAN DEFENSE EXPENDITURES, 1938-1965

INTRODUCTION

Table 1 is as complete a compilation of Latin American defense expenditures -- in constant U.S. dollars, country by country and year by year -- as the secondary sources of information will permit. One of its deficiencies is that there are blank spaces for many countries and many dates, indicating that defense-expenditure data were not available. Hence, an important task for future research with the primary sources of data -- using the conversion methods described above in Sect. I and tested for sensitivity in Appendix E -- would be to fill in the gaps on a consistent, 1960-U.S.-dollars basis.

Until this gap-filling research is done, any large continental or regional data comparisons will be drawn largely on the numbers in Table 2. This table summarizes the data in Table 1 for those countries for which complete, or nearly complete, series for the 1938-1965 time period were obtainable. In the years 1959, 1960, and 1961, for which complete series are obtainable for all Latin American countries except Cuba and Panama,[1] it is interesting to note the following:

- o The six South American countries shown accounted for 96.5, 95.7, and 95.3 percent of total South American defense expenditures in the three years, respectively. The average was 95.8 percent.

- o The four Central American countries shown accounted for 58.2, 63.9, and 65.7 percent of total Central American defense expenditures in the three years, respectively. The average was 62.6 percent.

- o The ten Latin American countries in Table 2 accounted for 91.3, 91.3, and 90.9 percent of total Latin American defense expenditures for the three years, respectively. The average was 91.2 percent.

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[1]For what it is worth, the commonly accepted _impressionistic_ estimates for these two countries are: Cuba ~$95 million (1960 U.S.), Panama ~$1.5 million (1960 U.S.) per year for the three years.

o Although no one could defend the proposition that the
averages prevailing in 1959-1961 would necessarily apply
for all years -- in view of the fact that Argentina,
Brazil, Chile, Colombia, Peru, Venezuela, and Mexico
have historically had the largest armed forces and been
the biggest spenders -- one could safely say (a) that
the sample of six South American countries in Table 2
would never represent less than about 85 percent of
total South American defense expenditures, and (b)
that the sample of four Central American countries
would never represent less than about 60 percent of
total Central American defense expenditures. These
would be absolutely minimum percentages.

Some observations are made below on continental, regional, and
individual country trends -- all based on the contents of Tables 1-3.
The selection ends with a comparison of Latin American defense expendi-
tures for 1938-1965 with the defense expenditures of a few European,
Asian, and African countries.

SOME OBSERVATIONS ON CONTINENTAL TRENDS

Contrary to the view held by some[1] that total Latin American
defense expenditures have reached the $2 billion level, it is extremely
doubtful that total Latin American defense expenditures ever -- even
in the peak year of 1958 -- exceeded $1.5 billion (and even this
figure should probably be $1.4 billion) 1960 U.S. dollars.

Beginning in 1956, total Latin American defense expenditures
remained at a relatively constant level, but there are clear indica-
tions of a non-trivial upturn beginning in 1964. The increase in
total Latin American defense expenditures was about 2.3 percent in
1964 over 1963, and about 6 percent in 1965 over 1964.

There is nothing in the evidence developed in this Memorandum to
support the contention, frequently heard, that present-day Latin Ameri-
can defense expenditures are several times larger than in the late 1930s.[2]

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[1] See, for example, the $2 billion estimate in Samuel Shapiro,
Invisible Latin America (Boston: Beacon Press, 1963), pp. 6-7.

[2] See, for example, Edwin Lieuwen's Arms and Politics in Latin
America:
    Although budgetary percentages generally remained
constant, the expenses for Latin America's armed forces

	1938	1939	1940	1941	Average, Pre-war Years	1942	1943	1944	1945	Average, War Years	1946	1947	1948	1949	Av E Po Y
South America															
Argentina	145.6	--	128.6	141.6	138.6	178.4	243.0	432.0	466.8	330.1	497.9	403.8	573.8	424.4	4
Bolivia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Brazil	--	239.5	189.8	176.5	201.9	282.9	428.4	421.7	368.1	375.3	286.5	224.3	202.3	257.9	2
Chile	63.3	63.3	63.3	51.1	60.3	58.4	87.7	65.0	85.0	74.0	90.0	83.6	67.4	70.0	
Colombia	14.2	15.4	14.8	14.9	14.8	15.0	12.5	13.2	14.3	13.8	14.7	20.7	21.8	25.9	
Ecuador	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Paraguay	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Peru	21.8	24.4	19.7	38.8	26.2	52.5	39.5	44.6	40.5	44.3	37.6	34.4	24.9	32.8	
Uruguay	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Venezuela	25.0	22.1	24.7	23.4	23.8	20.4	18.0	18.0	15.7	18.1	22.9	29.6	35.0	43.2	
Central America															
Costa Rica	1.4	1.7	2.1	2.1	1.8	2.4	2.4	2.7	2.2	2.4	1.8	1.9	4.0	1.8	
Cuba	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dominican Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
El Salvador	5.2	4.9	5.4	4.4	5.0	4.3	3.7	2.6	2.4	3.3	3.0	3.7	3.7	4.0	
Guatemala	--	--	--	--	--	--	--	--	--	--	5.1	5.1	5.1	6.4	
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	2.5	--	
Honduras	--	2.4	2.5	2.5	2.5	2.2	2.0	1.7	2.5	2.1	2.6	3.3	4.9	3.7	
Mexico	47.5	53.9	72.4	72.8	61.7	76.2	77.7	63.9	65.5	70.8	54.5	52.9	53.8	57.9	
Nicaragua	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Panama	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

NOTES:

- All dollar defense figures were obtained from the United Nations Statistical Yearbook except for the following, which w Bolivia, 1958-1963; Paraguay, 1956-1964; Peru, 1961-1962; Uruguay, 1959-1961; Dominican Republic, 1959; Honduras, 195

- All entries are final, actual expenditures except: Bolivia, 1958-1963; Brazil, 1965; Ecuador, 1965; Paraguay, 1963-196 1948; Haiti, 1959-1965; and Nicaragua, 1963 and 1964.

- Costa Rican defense expenditure shows a spurious increase from 1959 to 1965, because beginning in 1959 the budget categ and Other Security Forces." Just how much "defensa" was included in the old terminology is unclear, but if the reade he might deflate the 1959-1965 figures by $2-2.5 million per year. This is on the assumption that the 1948 legally i maintained and that over the years, only minor upward adjustments took place to compensate for cost-of-living wage in in this table the figures are left as reported to the Statistical Yearbook, in several of the tables throughout the t figure is needed (for example, in the tables of estimates of defense expenditures per member of the armed forces), ap

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Tabla 1

TOTAL ANNUAL LATIN AMERICAN DEFENSE EXPENDITURES, BY COUNTRY

(Millions of 1960 U.S. dollars)

3	1944	1945	Avaraga, War Years	1946	1947	1948	1949	Average, Early Post-war Yaars	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	Avaraga, 1950a	1960	19(
0	432.0	466.8	330.1	497.9	403.8	573.8	424.4	475.0	323.4	328.8	273.1	304.3	342.3	274.1	346.8	270.2	293.5	245.0	300.2	284.9	291
	--	--	--	--	--	--	--	--	--	--	--	4.2	--	--	2.4	2.5	2.1	2.8	2.8	4.0	4
4	421.7	368.1	375.3	286.5	224.3	202.3	257.9	242.8	257.7	297.4	296.6	254.0	244.4	282.4	322.2	394.3	413.4	309.3	308.2	267.3	252
7	65.0	85.0	74.0	90.0	83.6	67.4	70.0	77.6	79.9	75.0	--	135.5	79.8	123.4	118.3	118.7	124.1	99.7	106.0	103.5	102
5	13.2	14.3	13.8	14.7	20.7	21.8	25.9	20.8	23.6	29.2	42.1	55.0	62.7	63.8	62.8	53.6	48.9	42.2	48.4	47.3	54
	--	--	--	--	--	--	--	--	--	--	7.5	12.1	--	18.2	20.1	19.3	18.4	16.5	16.0	22.2	21
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.8	4.8	5.8	5.1	5.1	4.9	4
5	44.6	40.5	44.3	37.6	34.4	24.9	32.8	32.4	35.5	40.1	38.1	36.6	33.7	35.9	59.1	53.8	61.0	52.3	44.6	50.1	51
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.4	9.4	10.8	14
0	18.0	15.7	18.1	22.9	29.6	35.0	43.2	32.7	58.2	59.2	65.2	67.9	65.9	105.3	131.6	106.7	174.2	191.7	102.6	174.6	147
	2.7	2.2	2.4	1.8	1.9	4.0	1.8	2.4	1.5	1.9	2.0	2.0	2.1	2.2	2.2	2.5	2.3	5.7	2.7	5.8	5.
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33.5	41.7	37.6	33.4	34
7	2.6	2.4	3.3	3.0	3.7	3.7	4.0	3.6	4.6	4.7	5.9	6.1	6.3	6.2	6.5	7.7	7.2	6.0	6.1	6.1	6.
	--	--	--	5.1	5.1	5.1	6.4	5.4	5.5	5.4	6.3	6.2	5.8	7.2	8.2	8.6	9.2	9.6	7.2	9.6	9.
	--	--	--	--	--	2.5	--	2.5	--	3.4	3.6	5.1	4.5	4.4	4.8	4.8	6.2	6.6	4.8	5.5	5.
0	1.7	2.5	2.1	2.6	3.3	4.9	3.7	3.6	2.9	2.9	3.3	2.9	2.8	2.6	4.2	4.2	4.6	4.3	3.5	4.1	7.
7	63.9	65.5	70.8	54.5	52.9	53.8	57.9	54.8	58.2	58.6	54.5	62.9	50.7	56.7	63.2	74.7	72.4	73.4	62.5	81.7	88.
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.4	5.9	6.2	6.5	6.7	6.
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Statistical Yaarbook axcept for tha following, which wara taken from América an Cifras (1965 adition): ...ay, 1959-1961; Dominican Republic, 1959; Honduras, 1958; and Nicaragua, 1957-1964.

...-1963; Brazil, 1965; Ecuador, 1965; Paraguay, 1963-1964; Paru, 1963-1964; Uruguay, 1959-1961; Venazuela,

...959 to 1965, bacausa baginning in 1959 the budgat catagory "Defansa" was axpandad to "Justica, Polica, ...ed in tha old tarminology is unclaar, but if tha raader wants some particular data for Costa Rica ...ar. This is on tha assumption that tha 1948 lagally imposad cailing on sacurity forcas was ...ts took placa to compansate for cost-of-living waga incraasas, promotions, and so forth. Although ...al Yaarbook, in savaral of the tablas throughout the text where a figura comparabla to tha post-1959 ...fansa axpandituras par membar of tha armed forcas), appropriate adjustments hava baan mada.

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ES, BY COUNTRY

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1951	1952	1953	1954	1955	1956	1957	1958	1959	Average, 1950s	1960	1961	1962	1963	1964	1965	Average, Early 1960s
28.8	273.1	304.3	342.3	274.1	346.8	270.2	293.5	245.0	300.2	284.9	291.2	279.4	274.4	290.6	279.0	283.3
--	--	4.2	--	--	2.4	2.5	2.1	2.8	2.8	4.0	4.6	4.7	6.0	--	--	4.8
97.4	296.6	254.0	244.4	282.4	322.2	394.3	413.4	309.3	308.2	267.3	252.0	262.5	267.9	272.6	--	264.5
75.0	--	135.5	79.8	123.4	118.3	118.7	124.1	99.7	106.0	103.5	102.9	106.2	88.1	83.8	98.6	97.2
29.2	42.1	55.0	62.7	63.8	62.8	53.6	48.9	42.2	48.4	47.3	54.6	90.7	94.2	85.8	97.5	78.4
--	7.5	12.1	--	18.2	20.1	19.3	18.4	16.5	16.0	22.2	21.1	20.1	17.4	19.8	22.2	20.5
--	--	--	--	--	4.8	4.8	5.8	5.1	5.1	4.9	4.2	4.8	5.3	5.5	--	4.9
40.1	38.1	36.6	33.7	35.9	59.1	53.8	61.0	52.3	44.6	50.1	51.9	51.9	59.4	56.8	--	54.0
--	--	--	--	--	--	..	--	9.4	9.4	10.8	14.9	--	--	--	--	12.9
59.2	65.2	67.9	65.9	105.3	131.6	106.7	174.2	191.7	102.6	174.6	147.6	156.5	183.0	190.2	206.9	176.5
1.9	2.0	2.0	2.1	2.2	2.2	2.5	2.3	5.7	2.7	5.8	5.7	5.9	5.8	5.3	5.9	5.7
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	33.5	41.7	37.6	33.4	34.4	33.4	30.8	33.3	29.7	32.5
4.7	5.9	6.1	6.3	6.2	6.5	7.7	7.2	6.0	6.1	6.1	6.1	8.5	8.2	7.4	8.5	7.5
5.4	6.3	6.2	5.8	7.2	8.2	8.6	9.2	9.6	7.2	9.6	9.3	9.0	9.3	10.9	14.1	10.4
3.4	3.6	5.1	4.5	4.4	4.8	4.8	6.2	6.6	4.8	5.5	5.1	6.0	5.7	6.2	6.1	5.8
2.9	3.3	2.9	2.8	2.6	4.2	4.2	4.6	4.3	3.5	4.1	7.0	7.0	7.1	4.7	4.9	5.8
58.6	54.5	62.9	50.7	56.7	63.2	74.7	72.4	73.4	62.5	81.7	88.0	98.8	108.9	125.2	140.7	107.2
--	--	--	--	--	--	7.4	5.9	6.2	6.5	6.7	6.9	6.9	7.1	6.9	--	6.9
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

érica en Cifras (1965 edition):
, 1957-1964.

64; Uruguay, 1959-1961; Venezuela,

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ons, and so forth. Although
re comparable to the post-1959
ments have been made.

Table 2

DEFENSE EXPENDITURES FOR A SELECTED SAMPLE OF LATIN A

(Millions of 1960 U.S. doll:

Time Period	Argentina	Brazil	Chile	Colombia	Peru	Venezuela	So. Amer: Sample Totals
Pre-war Years							
1938	145.6	--	63.3	14.2	21.8	25.0	--
1939	--	239.5	63.3	15.4	24.4	22.1	--
1940	128.6	189.8	63.3	14.8	19.7	24.7	440.9
1941	141.6	176.5	51.1	14.9	38.8	23.4	446.3
War Years							
1942	178.4	282.9	58.4	15.0	52.5	20.4	607.6
1943	243.0	428.4	87.7	12.5	39.5	18.0	829.1
1944	432.0	421.7	65.0	13.2	44.6	15.7	992.2
1945	466.8	368.1	85.0	14.3	40.5	18.1	992.8
Early Post-war Years							
1946	497.9	286.5	90.0	14.7	37.6	22.9	949.6
1947	403.8	224.3	83.6	20.7	34.4	29.6	796.4
1948	573.8	202.3	67.4	21.8	24.9	35.0	925.2
1949	424.4	257.9	70.0	25.9	32.8	43.2	854.2
1950s							
1950	323.4	257.7	79.9	23.6	35.5	58.2	778.3
1951	328.8	297.4	75.0	29.2	40.1	59.2	829.7
1952	273.1	246.6	--	42.1	38.1	65.2	--
1953	304.3	254.0	135.5	55.0	36.6	67.9	853.3
1954	342.3	244.4	79.8	62.7	33.7	65.9	828.8
1955	274.1	282.4	123.4	63.8	35.9	105.3	884.9
1956	346.8	332.2	118.3	62.8	59.1	131.6	1050.8
1957	270.2	394.3	118.7	53.6	53.8	106.7	997.3
1958	293.5	413.4	124.1	48.9	61.0	174.2	1115.1
1959	245.0	309.3	99.7	42.2	52.3	191.7	940.2
Early 1960s							
1960	284.9	267.3	103.5	47.3	50.1	174.6	927.7
1961	291.2	252.0	102.9	54.6	51.9	147.6	900.2
1962	279.4	262.5	106.2	90.7	51.9	156.5	947.2
1963	274.4	267.9	88.1	94.2	59.4	183.0	967.0
1964	290.6	272.6	83.8	85.8	56.8	190.2	979.8
1965	279.0	--	98.6	97.5	--	206.9	--

NOTE: Data summarized from Table 1.

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Table 2

LECTED SAMPLE OF LATIN AMERICAN COUNTRIES, 1938-1965

lions of 1960 U.S. dollars)

u	Venezuela	So. America Sample, Totals	Costa Rica	El Salvador	Honduras	Mexico	C. America Sample, Totals	Latin America Sample, Totals
8	25.0	--	1.4	5.2	--	47.5	--	--
4	22.1	--	1.7	4.9	2.4	53.9	62.9	--
7	24.7	440.9	2.1	5.4	2.5	72.4	82.4	523.3
8	23.4	446.3	2.1	4.4	2.5	72.8	81.8	528.1
5	20.4	607.6	2.4	4.3	2.2	76.2	85.1	692.7
5	18.0	829.1	2.4	3.7	2.0	77.7	85.8	914.9
6	15.7	992.2	2.7	2.6	1.7	63.9	70.9	1063.1
5	18.1	992.8	2.2	2.4	2.5	65.5	72.6	1065.4
6	22.9	949.6	1.8	3.0	2.6	54.5	61.9	1011.5
4	29.6	796.4	1.9	3.7	3.3	52.9	61.8	858.2
9	35.0	925.2	4.0	3.7	4.9	53.8	66.4	991.6
8	43.2	854.2	1.8	4.0	3.7	57.9	67.4	921.6
5	58.2	778.3	1.5	4.6	2.9	58.2	67.2	845.5
1	59.2	829.7	1.9	4.7	2.9	58.6	68.1	897.8
1	65.2	--	2.0	5.9	3.3	54.5	65.7	--
6	67.9	853.3	2.0	6.1	2.9	62.9	73.9	927.2
7	65.9	828.8	2.1	6.3	2.8	50.7	61.9	890.7
9	105.3	884.9	2.2	6.2	2.6	56.7	67.7	952.6
1	131.6	1050.8	2.2	6.5	4.2	63.2	76.1	1126.1
8	106.7	997.3	2.5	7.7	4.2	74.7	89.1	1086.4
0	174.2	1115.1	2.3	7.2	4.6	72.4	86.5	1201.6
3	191.7	940.2	5.7	6.0	4.3	73.4	89.4	1029.6
1	174.6	927.7	5.8	6.1	4.1	81.7	97.7	1025.4
9	147.6	900.2	5.7	6.1	7.0	88.0	106.8	1007.0
9	156.5	947.2	5.9	8.5	7.0	98.8	120.2	1067.4
4	183.0	967.0	5.8	8.2	7.1	108.9	130.0	1097.0
8	190.2	979.8	5.3	7.4	4.7	125.2	142.6	1122.4
	206.9	--	5.9	8.5	4.9	140.7	160.0	--

B

Although the data in Table 3 suggest a doubling of expenditures from the late 1930s to the early 1960s, the increase could hardly be described as tremendous (in Lieuwen's phrase), particularly in view of the growth rates of military expenditures elsewhere in the world. More importantly, if one uses the average for the war years or the early post-war years as a basis of comparison, the increase for Latin America as a whole to the average level of the first half of the 1960s has been more on the order of only 12 to 15 percent.

SOME OBSERVATIONS ON REGIONAL TRENDS

1. South American defense expenditures more than doubled from the pre-war base to the average for the first half of the 1960s; comparable Central American defense expenditures rose by slightly less than 75 percent.

2. Central American average expenditures stayed fairly constant for the first four sample time periods, then rose sharply in the early 1960s. In South America, however, the greatest rise occurred between the pre-war period and the war years (an increase of approximately 85 percent). Expenditures increased at much slower rates in the major periods after the war: at about 3 percent in the early post-war years (over the war years), at a similar rate during the 1950s (over the early post-war years), and at about 5 percent in the early 1960s (over the average for the 1950s). Stated somewhat differently, the increase for the South American sample from the war years to the early 1960s was about 11.5 percent.

3. Both regions have been trending upward, particularly in 1964 and 1965, but have been doing so at widely divergent rates. In South America, 1964 defense expenditures increased by about 1.3 percent over 1963 expenditures, whereas Central American defense expenditures

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in absolute figures grew tremendously. This was because total national expenditures, with the rise of statism and big bureaucracies, had risen rapidly. For example, national budgets were several times larger in 1958 than in 1939. [14, p. 147; emphasis added.]

Table 3

AVERAGE ANNUAL DEFENSE EXPENDITURES FOR A SELECTED SAMPLE[a] OF LATIN AMERICAN COUNTRIES, BY MAJOR TIME PERIODS

(Millions of 1960 U.S. dollars)

Region	Average, Pre-war Years	Average, War Years	Average, Early Post-war Years	Average 1950s	Average, Early 1960s
South America					
Argentina	138.6	330.1	475.0	300.2	287.3
Brazil	201.9	275.3	242.8	308.2	264.5
Chile	60.3	74.0	77.8	106.2	97.2
Colombia	14.8	13.8	20.8	48.4	78.4
Peru	2o.?	44.3	32.4	44.6	54.0
Venezuela	23.8	18.1	32.7	102.6	176.5
Total, South American Sample	465.6	855.6	881.5	910.0	953.9
Central America[b]					
Costa Rica	1.8	2.4	2.4	2.4	2.4
El Salvador	5.0	3.3	3.6	6.1	7.5
Honduras	2.5	2.1	3.6	3.5	5.8
Mexico	61.7	70.8	54.8	62.5	107.2
Total, Central American Sample	71.0	78.6	64.4	74.4	122.8
Total, Latin American Sample	536.6	934.2	945.9	984.5	1076.8

NOTES:

[a]Sample was selected on the basis of using data only for countries for which nearly 100 percent complete information was available for the entire period 1938-1965. In 1959, 1960, and 1961 the selected countries in the South American sample accounted for 96.5, 95.7, and 95.3 percent, respectively of total South American defense expenditures. For the years 1959, 1960, and 1961 the selected countries of the Central American sample accounted for 58.2, 63.9, and 65.7 percent, respectively, of total Central America (Cuba and Panama excluded) defense expenditures. For Latin America as a whole, the ten countries during 1959, 1960, and 1961 accounted for 91.3, 91.3, and 90.9 percent, respectively, of the defense expenditures of Latin American defense countries except Cuba and Panama. Data were taken from Table 1.

[b]Costa Rican data for 1959-1965 were adjusted as indicated in the footnote to Table 1.

increased by about 10 percent. With respect to 1965 increases over 1964, the South American increase was about 4 percent and the Central American increase was about 12 percent. In large part, the differential rate of increase is attributable to Mexico, which accounted for some 85 percent of Central American defense expenditures. As will be discussed below, Mexico defense expenditures have been increasing at a sharp pace since 1954.

SOME OBSERVATIONS ON TRENDS WITHIN INDIVIDUAL COUNTRIES

Traditionally, Argentina, Brazil, and Chile have been considered to be the major Latin American military powers. To the extent that defense expenditures are a partial measure of military power, Argentina and Brazil (in that order -- but extremely close together) are still the leading defense spenders. Chile, however, has been replaced by Venezuela and Mexico, and if present trends in both countries continue they will be surpassed by Colombia. Venezuela's defense expenditures began to exceed Chile's in 1956, and the gap has grown wider ever since, partly because Chilean expenditures have trended downward while Venezuelan expenditures have trended sharply upward. Indeed, given a continuation in the present rate of Venezuelan expenditures and fairly stable expenditures in Brazil and Argentina, it is not unlikely that Venezuela will become the leading defense spender in Latin America by the early 1970s. In 1963, Mexican defense expenditures surpassed those of Chile for the first time; they have exceeded them at an increasing rate ever since. In 1963 and 1964, Colombian defense expenditures exceeded Chilean defense expenditures but fell slightly below them in 1965. If present trends continue in both countries, Colombian defense expenditures will probably exceed Chilean expenditures by 1966, or by 1967 at the latest.

In part, the replacement of Chile by Venezuela and Mexico -- and probably now by Colombia -- can be set down to the fact that annual Chilean defense expenditures, beginning in 1959, appear to have stabilized at a fairly level plateau. Why this is so is worth study. Due weight should be given to the relative internal political stability in Chile (that is, at least in the sense that no illegal, unscheduled changes of

government occurred in Chile during the period 1938-1965); to the possible delegation of "civic action" activities to other ministries and agencies than the defense establishment; and finally to Chilean foreign policy -- certainly beginning with President Alessandri -- which has sparkplugged a movement for arms-control and armaments-reduction programs in all of Latin America.

It would be worthwhile, likewise, to study the reasons for the behavior of Mexican military expenditures. Just as in the case of Chile, there were no unscheduled or illegal changes of government in the period 1938-1945. Mexico has had no armed border conflicts since 1892, though there is little doubt that she has been and is concerned about Guatemala's designs on Honduras and British Honduras territory. But, as one Chilean commentator puts it regarding the two countries that border Mexico: "The country on its north -- the United States -- is much too big to attack, and the country on the south -- Guatemala -- is too small to worry about."[1]

SOME INTERNATIONAL COMPARISONS

To compare Latin American defense expenditures with the performance of other countries in the world requires satisfying certain criteria: (1) finding countries with defense-expenditure-data price indexes comparable to the price indexes used as deflators in our Latin American country studies, and with foreign exchange rates published in the United Nations Statistical Yearbook for the period 1938-1965; (2) finding countries with little or no involvement in World War II; and (3) finding countries with little or no involvement in the Cold War. Obviously, not all of these criteria can be completely and satisfactorily met in every case. A sample of non-Latin American countries was nevertheless selected for purposes of comparison -- a sample that is believed to be as reasonable as could be developed. Table 4 contains the results of this effort. The following observations are worth noting:

1. Although Latin American defense expenditures doubled over the entire period, the bulk of the increase occurred in the period from the

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[1] Quoted in William Benton, The Voice of Latin America (New York: Harper, 1961), p. 150.

Table 4

AVERAGE ANNUAL DEFENSE EXPENDITURES BY MAJOR TIME PERIODS: A COMP⌐... ON OF THE SIX LARGEST LATIN AMERICAN DEFENSE SPENDERS AND A SAMPLE OF EUROPEAN , ND AFRO-ASIAN COUNTRIES

(Millions of 1960 U.S. dollars)

Country	Pre-war Years	War Years	Early Post-war Years	1950s	Early 1960s
Latin American Sample					
Argentina	138.6	330.1	475.0	300.2	287.3
Brazil	201.9	275.3	242.8	308.2	264.5
Chile	60.3	74.0	77.8	106.2	97.2
Colombia	14.8	13.8	20.8	48.4	78.4
Mexico	61.7	70.8	54.8	62.5	107.2
Venezuela	23.8	18.1	32.7	102.6	176.5
Total for sample	501.1	782.1	903.9	928.1	1011.1
European Sample					
Portugal	55.2	67.9	46.5	59.6	146.4
Sweden	547.2	816.0	313.8	477.1	592.5
Switzerland	369.2	295.2	111.5	188.9	271.0
Total for sample	971.6	1179.1	471.8	725.6	1009.9
Afro-Asian Sample					
Egypt	6.2	3.2	6.0	20.5	39.0
Ceylon	4.5	5.4	1.2	6.2	13.6
Iran	48.4	21.1	31.8	102.5	185.8
Iraq	3.8	1.6	2.0	7.1	16.4
Total for sample	62.9	31.3	41.0	136.3	254.8

pre-war years up to and including the early post-war years. From the early post-war years to the first half of the 1960s, there was an increase of only 12 percent. In the Afro-Asian sample, defense expenditures more than tripled in the entire time period, and the increase from the average amount of the early post-war years to that of the early 1960s was even higher. With respect to the European sample, defense expenditures increased by only 4 percent over the entire period; however, they more than doubled between the early post-war years and the early 1960s.

2. Switzerland is evidently the only country in the world that decreased defense expenditures throughout the entire time period. However, it should be noted that, from the early post-war years to the early 1960s, the rate of increase of Swiss defense expenditures (more than a doubling) stands in some contrast with the experience in Argentina (a sizable decline), in Brazil (relatively stable), and in Chile (a 25 percent increase).

3. With respect to Sweden, defense expenditures during the period increased by only a trifling percentage. However, between the early post-war years and the early 1960s, Sweden's expenditures increased by about 90 percent -- affording the same contrast noted in the preceding paragraph for the Latin American sample, though to a lesser degree.

III. A PRELIMINARY EXPLORATION OF THE BEHAVIOR PATTERN OF DEFENSE EXPENDITURES IN SOME LATIN AMERICAN COUNTRIES

INTRODUCTION

In looking at the data in the preceding section, one naturally seeks reasons for the upswings and downturns in the curves of defense expenditures for particular countries. Two questions, in particular, come to mind immediately: (1) Are the upswings and downturns in the defense-expenditure curves of specific countries related to, or reflective of, internal struggles for political power? (2) Are these upswings and downturns related to, or reflective of, chronic conflicts between countries having historically unresolved border problems?

Although there has been much public discussion of these two questions, there has been practically no systematic, quantitative analysis.[1] To a certain extent, the absence of quantitative analysis can be explained away by the absence of reasonably dependable series of country-by-country annual defense-expenditure data for extended periods of time. Mindful of the limitations of the defense-expenditure series in this Memorandum,[2] we nonetheless feel that until more refined series based on indigenous country data are developed, the data are sufficiently good to permit a preliminary exploration of these two questions.

We emphasize the preliminary and exploratory character of what follows in this section, because: (1) a satisfactory analytic apparatus for examining such complicated interactions has yet to be developed; (2) the historical and political data for most Latin American countries have yet to be organized and systematized to be compatible with the analytic apparatus adopted; and (3) improved defense-expenditure series have yet to be developed.[3]

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[1] One significant exception is Charles Wolf's analyses of the relationship between the level of democracy and local defense programs in Latin American countries. See, in particular, his The Political Effects of Military Programs: Some Indications from Latin America, The RAND Corporation, RM-3676-ISA, June 1963.

[2] See Sect. I.

[3] Here we have in mind not only the removal of the limitations of the United Nations Statistical Yearbook data, described in Sect. I, but

Accordingly, the objective of what follows is <u>not</u> to provide definitive answers to these two questions. Rather, it is to explore in a preliminary way one possible analytic process that may, with future refinements and with future enrichment of the political and historical and economic inputs on a compatible basis, produce better and higher-confidence answers. Related to this objective, above all, is a desire to encourage better analyses of these questions, using improved quantitative data on Latin American country defense expenditures and employing more precise and specific historical, political, economic, and military information.

DEFENSE-EXPENDITURE TRENDS AND INTERNAL POLITICAL INSTABILITIES: THE CASE OF VENEZUELA

Figure 1 was designed primarily to explore aspects of the first question, above: that is, the possible effects of internal political upheavals on the behavior of defense expenditures. One country, Venezuela, was chosen as a vehicle for this exploratory analysis. The curve of chief interest in the figure -- the principal protagonist on the stage -- is the Venezuelan one. As indicated in Table B-1 (Appendix B), Venezuela had five unscheduled changes in government during the period 1938-1965. In addition, she had several unsuccessful attempts at changes in government. (The curves for Chilean and Mexican defense expenditures were introduced to provide background data on the defense-expenditure behavior patterns of two militarily strong countries with no illegal or unscheduled changes in government during the period.)

Venezuela's internal political history during 1938-1965 was one of violent and frequent upheavals. Moreover, the military played a prominent role throughout -- behaving monolithically some of the time, but subject to frequent interservice differences that reflected internal civilian-political instabilities. All of this was complicated by foreign

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also the need to develop data on border conflicts for the period of the onset of the conflict, for its actual occurrence, and for the after-period. The categories of data would include the timing of special appropriations, the breakdown of expenditure data into more detail and for shorter time periods than one year, and so on.
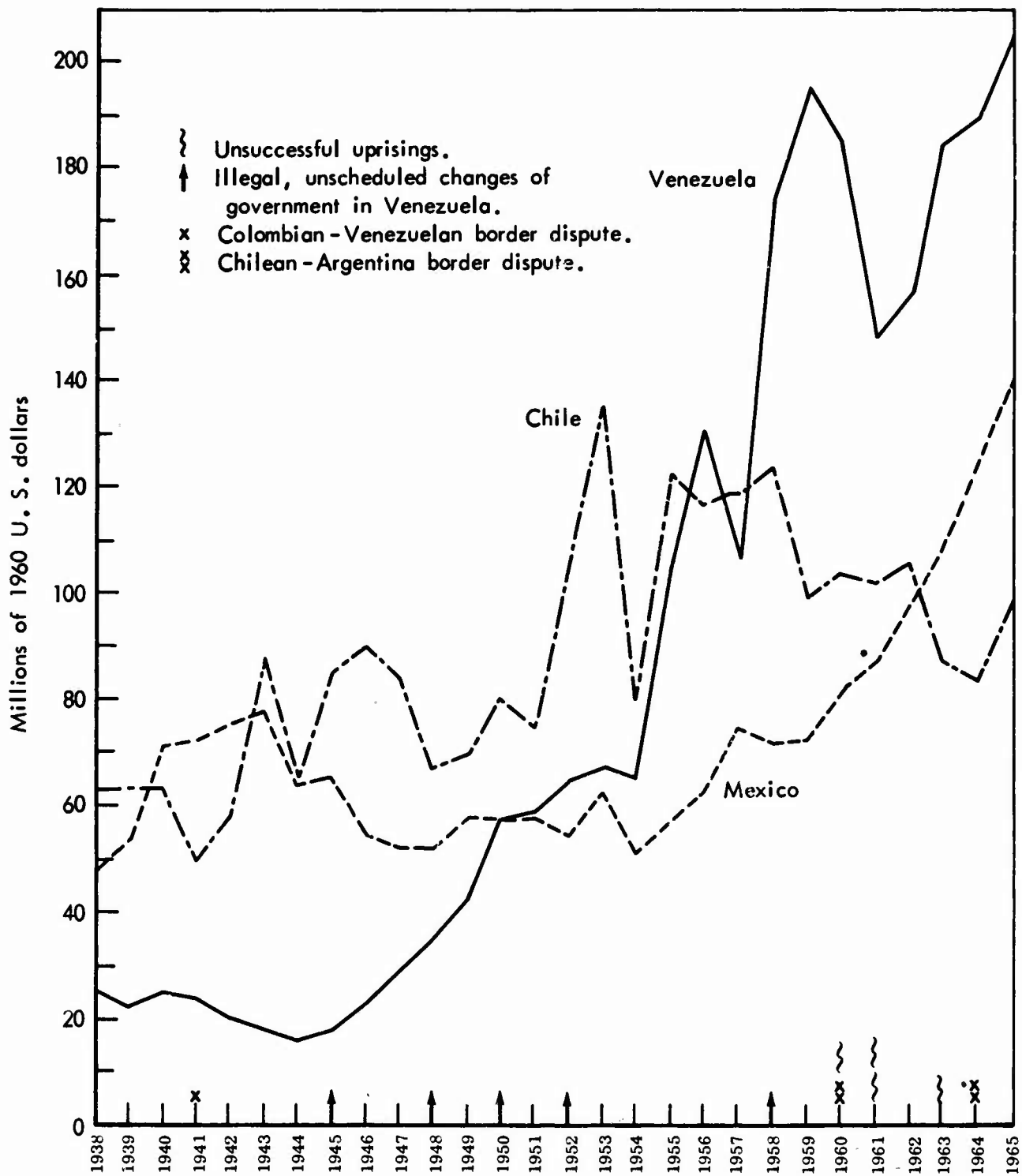
Fig. 1—Behavior of defense expenditures, 1938-1965, in Venezuela
(five internal conflicts and one external conflict); Chile
(no internal conflicts but one external conflict);
and Mexico (no internal or external conflicts)

entanglements, including, in the 1940s, some Venezuelan support for the
Caribbean legion and, in the 1960s, external assistance to internal dis-
sident elements (initially from the Dominican Republic, more recently
from Cuba).

Venezuela was ruled from 1908 to 1935 by the classic dictatorship
of Juan Vicente Gómez. The army was the central pillar of the authori-
tarian system advocated by Gómez under the label of "democratic
Caesarism." As such, the army's primary mission was to ensure that
any uprising against the government would be impossible.

During the next thirty years, after Gómez, the army became less
and less of a factor in the running of the government; but, paradoxically,
the cost of running the military establishment has become greater and
greater.

Beginning in 1935, when General Eleázar López Contreras succeeded
Gómez, and when he in turn was succeeded by General Isaias Medina
Angarita, there began and continued a movement: (a) to broaden and
deepen civilian participation in the running of the government, and (b)
to establish and maintain a national guard (in addition to the Army,
Navy, and Air Force) with the primary duty of preserving internal
security and, by implication, of counterbalancing the traditional polit-
ical power of the army. The decline of the army appears to be partially
reflected in Fig. 1 in the downward trend of defense expenditures.

In 1945, President Medina was deposed by a seven-man junta led by
Rómulo Betancourt and including Major Marcos Pérez Jiménez and Lt.-Col.
Carlos Delgado Chalbaud, younger officers tired of the excesses, graft,
and backwardness of the older officers inherited from the Gómez era.
In 1947, Rómulo Gallegos, a civilian (and a prominent novelist and
teacher) was elected President. Under Gallegos, an upward trend in
defense expenditures begun earlier under the Betancourt junta continued.
The trend was a reflection, in part, of the drive of the younger officers
to push the modernization of the army and, in part, of Gallegos' deter-
mination to strengthen the national guard -- at least in part as a
counter to military influence.

This upward trend in military expenditures continued unaffected
when Gallegos was deposed in 1948 by a junta of three military officers
led by Colonel Chalbaud. Chalbaud was provisional President until he
was assassinated and replaced by a civilian, Dr. D. Suárez Flammerich,
as president by choice of the then ruling junta. During Suárez
Flammerich's brief two years in office, defense expenditures continued
to increase, but at a greatly decreased rate. In December 1952, Colonel
Marcos Pérez Jiménez, with the support of the armed forces, compelled
Suárez Flammerich to resign and had himself installed as provisional
President. A year later, he was elected President. Until the end of
1954, the drastic reduction in the rate of increase of defense spending
begun by Suárez Flammerich was continued.

Why this reduction was begun by Suárez Flammerich and continued
for the first two years of Pérez Jiménez's regime (despite his obvious
debt to the army) is unexplained. Whatever the cause, Pérez Jiménez in
his first two years of office, and even Chalbaud in his two years of
office, did not behave in the commonly imputed fashion -- that is, by
paying off their debt to the military and procuring its continued
support by greatly increased defense expenditures.

In 1955 and 1956, however, defense expenditures, under Pérez
Jiménez, increased at an unprecedently high rate, rising to a then new
Venezuelan annual high in 1956. As will be discussed in Appendix G,
the Venezuelan Parliament tried to stem the expenditures in 1956, but
somehow Pérez Jiménez managed to spend on defense in that year 13 per-
cent more than had been appropriated for defense (see Appendix G,
Table G-5). It is commonly believed that these were the years in which
Pérez Jiménez was at his most active in attempting to build a police
state by a process of elevating to high places in the army and the
government close friends who shared in the graft. "He lavished funds
upon the armed forces, building them, for example, the most luxurious
and expensive officers' club in the entire world..." [15, p. 87].

Despite the excesses of 1955 and 1956, the last year of Pérez
Jiménez's reign (1957), curiously, witnessed a sharp decline in defense
expenditures. This decline occurred during a year when there was such

civilian opposition to the Pérez Jiménez style of government that all
the major political parties formed a coalition to attempt to recreate
constitutional government. Also during the year, many of the officers
of the defense establishment had become thoroughly and openly disenchanted
with the corruption of the army. Why, in the face of these two forces,
did Pérez Jiménez choose to cut defense expenditures drastically?
(According to the commonly accepted theories of Latin American political
behavior, rather than cut expenditures in such a crisis, he should have
increased them.) Certainly the answer does not lie in Parliamentarily
imposed constraints. As will be shown subsequently (Appendix G, Table
G-2), in 1957 Pérez Jiménez spent 30 percent less than Parliament appro-
priated to him for defense purposes!

On January 22, 1958 a junta composed of two military members and
two civilians and headed by Rear Admiral Wolfgang Larrazábal forced
Pérez Jiménez to resign and leave the country. Larrazábal produced on
his promise of a free election: it was held in December 1958. Rómulo
Betancourt defeated Larrazábal in the election and was inaugurated into
office in February 1959. Under Betancourt, the rate of increase in
defense expenditures (which had begun to rise sharply under the junta)
decreased in 1959; in 1960 defense expenditures themselves decreased
sharply, and in 1961 they decreased even more sharply.

These declines took place despite military unrest in 1960 and 1961.
In April 1960, Castro León, former Minister of Defense, led a revolt in
San Cristobal which was successfully crushed; Castro León was imprisoned
and a number of officer conspirators were dismissed. In November, a
group of army officers was arrested in the Valencia-Maracary area for
plotting the release of Castro León and the subsequent overthrow of the
government. In June 1961, there was a serious uprising in Barcelona and
other cities -- all part of a program to dislodge Betancourt. On June 24,
1961 there was un unsuccessful bombing attack against Betancourt's life,
an attempt supported by Pérez Jiménez, with the active assistance of
the Dominican Republic.[1] Finally, a leftist-led revolt in June at

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[1] So active and so apparent, that Venezuela called upon the Council
of the Organization of American States to take action. In the summer

the nval base at Puerto Cabello had to be crushed by forces loyal to Betancourt.

After all of this, Betancourt revised his policy of decreasing defense expenditures and in 1962 set in train a sharp rate of increase that ended with Venezuela's spending more on defense (in 1965) than she had spent in any other year of her history.

In June 1963, Betancourt escaped another attempt on his life. In December, Raul Leoni was elected President and continued the increase in the rate of defense expenditures. The Minister of Finance, Eddy Morales Crespo, in presenting the 1966 budget to the Venezuelan House of Representatives, stated: "Military expenditures increased by 26 percent[1] during the period 1962-1965 because of promotions, the bonus system and the periodic need of reviewing armament and equipment." He added that "in the last few years, in order to fight guerrilla out- breaks in several parts of the country, large sums were earmarked for the army."[2]

In commenting on the Betancourt regime, Edwin Lieuwen has observed that:

> From the very beginning [Betancourt] did his utmost to convince the armed forces that he was sympathetic to their institutional needs and aspirations. In his frequent mes- sages to the nation, he repeat~ y praised the officer corps for its apolitical, professio . comportment, for its loyalty and for its patriotism. Ever aware that the military had the power to depose him, the President questioned neither the traditionally liberal defense budgets, nor the purchase of jet aircraft and modern arms for the mythical role the military was preparing to play in defending the country against unspecified external threats [15, p. 87].

In view of the sharp decline in defense expenditures in the early years of Betancourt's regime, the Dominican Republic's manifest partici- pation in the bombing attempt on Betancourt's life in mid-1961, and the

of that year, a meeting of the American nations held in Costa Rica adopted a motion condemning Dominican acts of aggression and inter- vention in Venezuela.

[1] By 32 percent according to the figures in Table 1.

[2] Latin American Times, October 8, 1965.

more recent Cuban interventions, one cannot but think that Lieuwen
has treated Betancourt rather harshly. Equally, if not more impor-
tantly, it would appear that Lieuwen's formulation "traditionally
liberal defense budgets" overlooks the reality which has appeared
throughout this discussion: that defense budgets have varied sharply
at different times.

Surveying the preceding observations on the relationship between
Venezuelan annual defense expenditures and Venezuelan internal polit-
ical life, one finds many puzzling questions but few plausible answers
and, above all, considerable skepticism about certain commonly accepted
generalizations. For example, it is not very frequently true that
strictly military leaderships spend heavily and excessively on defense
as a means of perpetuating their leadership. Nor is it very frequently
(or clearly) true that civilian governments pamper the defense establish-
ments financially as a way of buying the continued support and loyalty
of the military. Nor is the reverse true: democratic governments do
not automatically cut military budgets.

To sum up the broad question of the interrelationships of defense
expenditures and internal politcal behavior, there is no doubt that
an important relationship exists, but that it is more complicated
than it has typically been taken to be by American observers of the
Latin American scene. Even the brief exploratory analysis attempted
here only scratches the surface of a complicated situation. It is
hoped that others will improve and enrich this Venezuelan analysis.
And it is further hoped that an improved Venezuelan analytical apparatus
will be used as a model for analyzing other Latin American countries.

THE INTERACTION OF BORDER CONFLICTS AND DEFENSE EXPENDITURES

The first question we want to consider is the possible effect of
armed conflicts over historically unresolved border issues -- or the
expectation of such conflicts -- on the historical pattern of defense
expenditures in particular Latin American countries. The question is
difficult to analyze, because no data are readily available on the
occurrence and intensity of fears and expectations, in particular

countries, of possible armed conflicts. Furthermore, as Table C-1
(Appendix C) shows, relatively few actual armed border conflicts
occurred during the period under consideration in this Memorandum
(1938-1965). However, enough did occur to make a beginning. The cases
chosen are Peru and Ecuador; Guatemala and Honduras; Venezuela and
Colombia; and Chile and Argentina.

Peru and Ecuador

From the information in Table C-1 on Peru and Ecuador, it is
apparent that the two countries have had a long history of conflict
over Amazonian territories. Five times since 1938, shooting has broken
out at the border. Two of these occasions are studied in Fig. 2
(Ecuadorian defense-expenditure data prior to 1952 are not available
in secondary sources). The 1956 conflict was preceded, as our data
show, by a sharp, one-year, accelerated increase in military expendi-
tures by Peru and by a prolonged, slow increase by Ecuador. After the
relaxation of tension, both countries decreased defense expenditures,
but in different ways. Peru cut expenditures back sharply for a year,
then increased them again; while Ecuador cut back on a continuing but
declining basis for several years.

This 1956 episode suggests that border conflicts and defense
expenditures may be interrelated. Historical evidence tends to confirm
this suggestion, though both the border incident and the increased
military expenditures may have been responsive to other factors as well.
Fears and ambitions following territorial losses in 1941 were possibly
reflected in the 1952 Ecuadorian decision to purchase some Canberra
light bombers -- a decision that could certainly contribute to a
Peruvian response. A variety of other factors, including especially
complicated domestic political patterns were probably also involved.
In Peru, for example, both the transition from a military to a civilian
president and the use of the electoral process to achieve this succession
in 1956 could have led to increased defense expenditures and perhaps
even to external tensions as guarantees of internal stability.
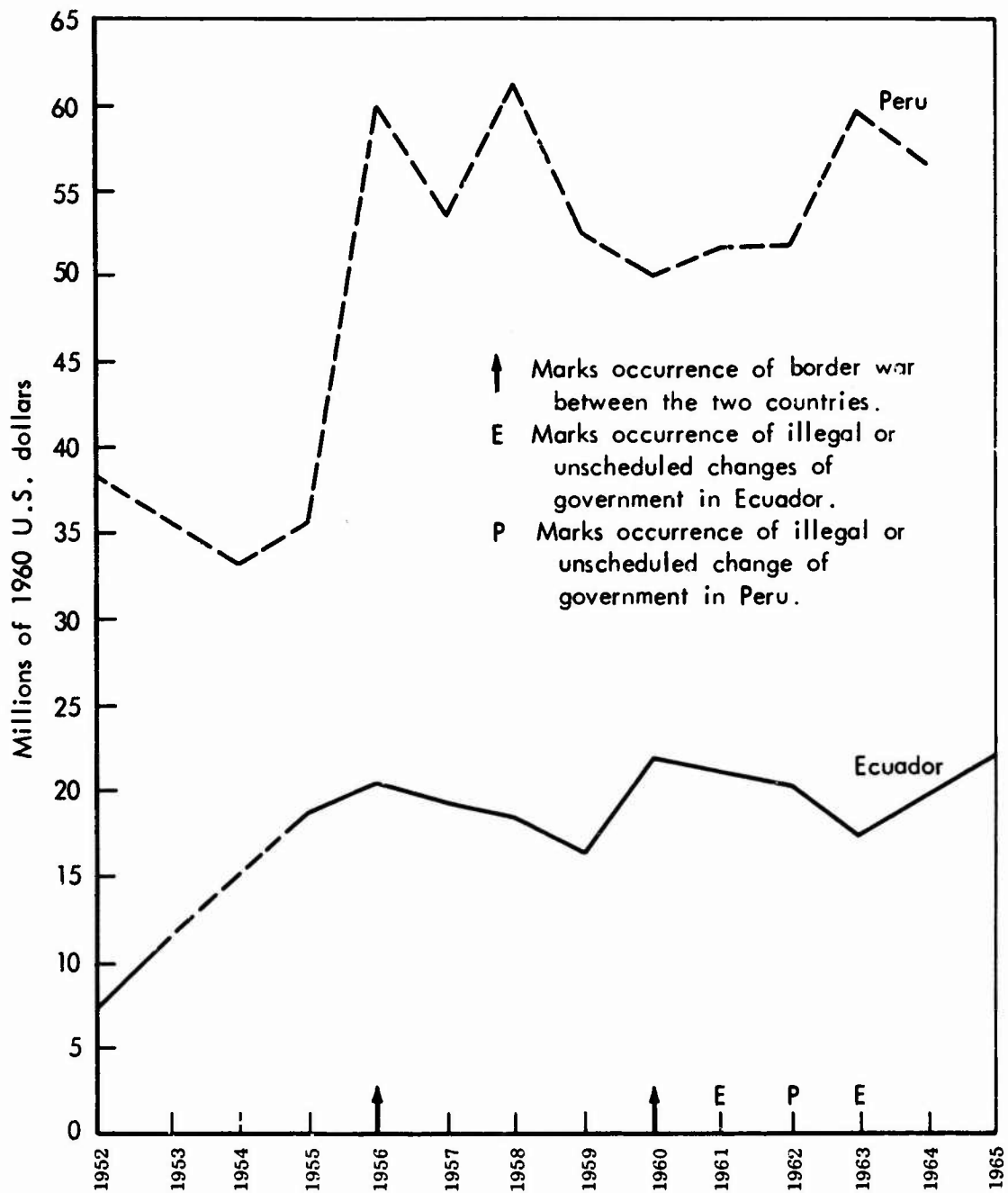
Fig. 2—Defense expenditures related to internal and
external conflicts: Ecuador and Peru, 1952-1965

A sharp increase in Ecuadorean defense spending preceded a similar rise in tensions, accompanied by a border incident, in 1960, although Peruvian defense expenditures seem to have been relatively unaffected. After the war, Ecuador again decreased defense expenditures for several years; Peruvian post-hostilities expenditures increased slightly for a few years, then rose sharply.

Guatemala and Honduras

In Fig. 3 one notes that the outbreak of hostilities in 1964 was preceded and followed by a sharp buildup in Guatemalan defense expenditures. Honduras, on the other hand, sharply decreased its defense expenditures in the year before the outbreak and only very mildly increased them in the year after, despite the continued upward trend of Guatemalan defense expenditures. Considering the internally troubled situation in Guatemala, where a military government faced sporadic guerrilla insurgency between 1963 and 1966, it would appear plausible that Honduras viewed these increased Guatemalan expenditures as internally motivated and not constituting a threat to mutual territorial ambitions.

Venezuela and Colombia

Figure 1, above, was developed to explore the question of the nature of the relationship between upswings and downturns in the annual defense expenditures of individual Latin American countries and internal struggles for political power. We observe there that Venezuela and Colombia clashed over border differences in 1941. We observe also that the 1941 conflict was preceded and followed, in Venezuela, by decreasing defense expenditures. From Table 2, above, we can see that the conflict was preceded and followed, in Colombia, by a very slight increase in defense expenditures. Thus it would appear that this particular border conflict had little or no effect on the defense expenditures of either country -- or that whatever effect it may have had was swamped by other governmental-expenditure problems in both countries.

Chile and Argentina

As for the conflicts between Chile and Argentina in 1960 and 1964,
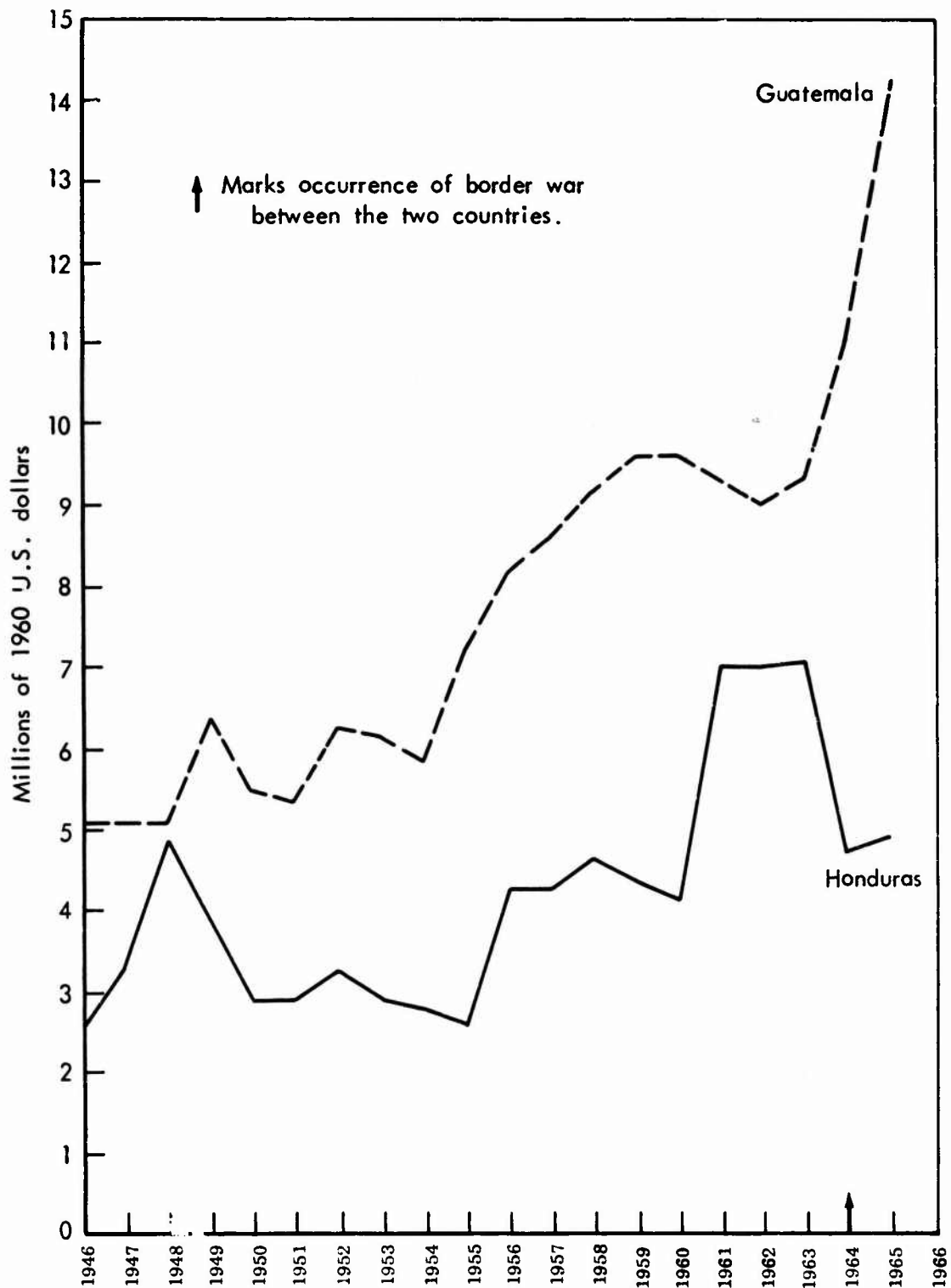
Fig. 3—Defense expenditures related to internal and external
conflicts: Guatemala and Honduras, 1946-1965

one notices in Fig. 1 that the Chileans sharply <u>decreased</u> their defense
expenditures in 1959 and 1963, t'ie years preceding the conflicts.
Chilean defense expenditures rose in 1960, but fell in 1964. In 1961
(that is, the year after the first conflict), there was a very slight
decrease in defense expenditures; after the 1964 incident, defense
expenditures were sharply increased. Argentina -- like Chile --
decreased its defense expenditures drastically in 1959 and 1962-1963
(Table 2). In 1960 and 1964, sharp upswings in Argentinian defense
expenditures occurred. After the 1960 crisis, Argentina increased its
defense expenditures somewhat; after the 1964 incident -- quite unlike
Chile -- it decreased them sharply.

Summing up, both countries sharply decreased their defense expendi-
tures prior to the two conflicts. In the 1960 incident, both countries
increased their defense expenditures; in the 1964 incident, Argentina
increased, and Chile decreased, its defense expenditures. After the
1960 incident, again Argentina increased and Chile decreased defense
expenditures; after the 1964 incident, precisely the opposite took place.

Since so many other factors and variables are involved in the
Chilean and Argentinian defense-expenditure picture, it is difficult
to make this kind of partial analysis with much confidence in the
outcome. Still, the following observations should be noted:

1. The increases in defense expenditures during the 1960 conflict
suggest that border conflicts may have a similar upward effect on the
defense-expenditure pattern of participants in a border conflict.

2. The fact that both countries sharply decreased defense expendi-
tures before the conflicts suggests that reciprocally decreasing
defense expenditures do not necessarily contribute to the prevention
of border conflicts.

3. The fact that Argentinian defense expenditures increased during
the year of the 1964 conflict lends substance to the notion that border
conflict: do have an upward effect on defense expenditures. However,
the fact that Chile continued to decrease defense expenditures suggests
just the opposite.

4. Equally contradictory is the post-hostilities (1964) defense-expenditure conduct of the two countries. Argentina behaved as if the incident was closed; whereas, Chile behaved as if it were going to prepare itself for a renewal of the conflict or, by so preparing, to prevent a renewal. This is not to say that the occurrence of a border conflict may not affect post-war defense expenditures, but rather to suggest that the occurrence may produce quite different post-war defense-expenditure reactions. In this connection, it will be interesting to observe how Argentinian defense expenditures react in 1966 and 1967 to the sharp Chilean post-conflict increase in 1965.

Summing-up the Four Cases

The four cases partially analyzed above suggest in a very general way that there may be at least some limited relationship between the occurrence of border conflicts and the behavior of defense-expenditure patterns in particular countries. The relationship, whatever it is, is complex and probably varies widely from time to time and from country to country. Further analysis would require a more sophisticated analytical apparatus than that employed here, and much better economic, political, and military inputs.

IV. DEFENSE EXPENDITURES AS A PERCENTAGE OF
TOTAL GOVERNMENT EXPENDITURES

Observers of the Latin American scene frequently inveigh against the "large" percentage of total government expenditures going into defense budgets [14][22][23]. The common complaint is that economic and social progress inevitably takes second place to the proliferation of large and pretentious military establishments -- establishments that help support military dictatorships. For example, Lieuwen contends:

> One of the chief impediments to real economic progress in nearly all Latin American countries, whether the regime was military or not, was the inflated demands the armed forces made upon government revenues. Traditionally, since the turn of the century, the armed forces' reported share of the national budget has averaged about 20-25 percent annually in most Latin American countries. Official figures of war and navy departments, however, do not tell the whole story. Sizable appropriations for the armed forces, amounting to perhaps 5 percent of the total budget, were often concealed in appropriations for the ministries of interior, public works, and communications. In Paraguay, after the military coup of 1954, the share of the armed forces went up to 50 percent and in Colombia and Cuba, due to the civil wars, military budgets also rose sharply. In the total Latin American picture, however, these increases were at least partly counterbalanced by sharp declines in Mexico after 1938, in Bolivia following the 1952 revolution, and in Costa Rica following the abolition of the army in 1948 [14, p. 147].

Before launching into an analysis and critique of the empirical foundations of this point of view among students of Latin American politics, it is not irrelevant to point out that in a truly "Smithian" economy, one would expect defense expenditures to constitute a high percentage of total government expenditures, because defense is one of the principal functions of government; whereas many other functions -- performed in some countries by the government -- are the province of the private sector of the economy. For example, in Switzerland, defense made up about 61 percent of total governmental expenditures in the pre-war years, 55 percent in the war years, 25 percent in the

early post-war years, 33 percent in the 1950s, and 33 percent in the first half of the 1960s.[1]

FOUR QUESTIONABLE PROPOSITIONS

But let us return to the common view of observers of Latin American defense expenditures -- that these expenditures are disproportionately large. Four propositions seem to be central to this point of view: (1) that, typically, in Latin American countries the percentage of total government expenditures allocated to defense is high (at least 20 to 25 percent);[2] (2) that this high share has persisted for many years (at least since 1940); (3) that upward variations in this high average are associated with internal political conflicts; and (4) that in the few cases where the defense share has been noticeably "low" (Mexico after 1938, Bolivia after 1953, and Costa Rica after 1948), it has been because militarism in those countries has been dying or is already dead.

These four propositions -- discussed below -- have often been advanced on the basis of insufficient empirical research. Character-istically, the propositions extend to only one or two countries for some brief time period like one to five years. For example, Lieuwen's treatise on Venezuela [17, p. 144] covers only one year (1962); his more basic work on arms and politics in Latin America [14] covers most Latin American countries but for only five years (1937-1941).[3]

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[1]More will be said about this in detail in the concluding part of this section.

[2]Lieuwen contends [14, p. 147] that an additional amount up to perhaps 5 percent of the total budget "often" goes to the military via concealed appropriations. Since there is no way to identify (nor does he try) this sort of thing, the present author has consistently tried to avoid adding to the official figures. The reader, if he wishes, may add some factor like 5 percent to the figures in Tables 6 and 7, below, but it will not significantly alter the empirical observations in this section -- particularly those concerning the basic propositions.

[3]In addition, figures frequently fail to agree with the data sources employed; sometimes the percentages for a given country for a given year differ within the text; too often, figures are cited with no indication of the years to which they apply or of their source.

The First Proposition: Defense Expenditures Are
Disproportionately High

There is no question that, overall, the share of total government
budgets going to the military in Latin America before and during
World War II was high (See tables 5 and 6.) The average for Latin
America as a whole was 17.9 percent for the former period and 21.0
percent for the latter. South American countries averaged consider-
ably higher (19.0 and 25.1 percent, respectively) for the two periods,
and Central American countries considerably lower (16.8 and 16.9 per-
cent, respectively). This pattern was quite modest compared with that
of other countries of the world not directly involved in the war. For
example, in Portugal the pre-war average percentage was about 29 per-
cent and the wartime average 37 percent; in Sweden the figures were
39 and 47 percent, respectively; and in Switzerland they were 61 and
55 percent, respectively.

The average figures for the two periods (before and during World
War II) contain some interesting intercountry variations. For example,
in the South American group the military share before the war ranged
from a low of 10.8 percent in Venezuela to a high of 26.4 percent in
Brazil. During the same period the range in Central America reached
a low of 7.7 percent in Costa Rica to a high of 21.6 percent in Haiti.
During the war the South American range went from a low of 10.1 per-
cent in Venezuela to a high of 40.9 percent in Brazil. The Central
American shares ranged from 11.0 percent in Costa Rica to 24.0 percent
in Haiti.

Looking only at the changes from the pre-war to the wartime
period for the regional groups, we notice several interesting things.
The South American average rose from 19.0 percent to 25.1 percent;
the Central American average remained essentially constant; and the
total for all Latin America went from 17.9 to 21.0 percent. However,
two large increases occurred in Argentina (from 18.2 to 30.7 percent)
and Brazil (from 26.4 to 40.9 percent). The increases cannot be
explained away by border conflicts -- there were none.[1] This high

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[1]See Appendix C.

Table 5

ANNUAL LATIN AMERICAN DEFENSE EXPENDITURES AS A PERCENTAGE OF ANNUAL TOTAL GOVERNMENTAL EXPENDITURES, 1938-1965

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
South America																												
Argentina	19.8	--	16.9	17.9	22.8	27.0	34.4	38.4	36.0	30.1	30.2	26.6	22.4	20.6	21.6	23.0	23.4	19.1	20.6	20.7	12.6	15.1	18.6	15.9	16.5	17.3	15.1	16.4
Bolivia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20.2	--	--	12.6	8.7	6.1	8.5	2.6	3.0	2.7	3.1	--	--
Brazil	30.4	24.3	25.5	25.3	34.8	45.2	44.1	39.3	36.0	34.7	30.4	28.3	26.8	31.0	32.5	28.2	26.5	28.2	24.6	29.2	27.5	23.9	20.8	16.6	15.7	15.2	14.0	23.1
Chile	23.5	22.2	15.4	25.0	25.8	27.3	28.9	27.0	24.7	21.8	17.6	18.8	18.3	17.0	--	21.6	15.9	22.0	22.4	20.9	18.0	14.1	12.1	11.6	11.3	10.1	10.0	9.1
Colombia	16.2	16.9	11.6	13.7	10.4	8.8	12.4	13.4	10.4	13.5	14.3	17.7	15.7	17.9	23.3	25.4	26.3	17.1	23.2	23.2	19.5	17.3	14.5	12.9	25.8	23.0	23.3	24.9
Ecuador	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18.0	22.2	--	21.6	22.5	21.6	21.6	17.5	18.6	13.4	17.8	14.5	13.1	13.5
Paraguay	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32.1	26.6	26.1	25.3	25.2	22.8	21.5	21.4	23.1	--
Peru	20.2	21.6	21.5	27.4	35.0	28.3	28.7	28.9	23.2	21.8	22.0	25.3	20.8	23.3	20.1	16.0	15.0	13.3	18.3	16.5	17.0	16.7	18.0	20.5	19.4	13.5	12.0	--
Uruguay	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.7	8.2	8.5	--	--	--	--
Venezuela	12.6	10.0	10.2	10.5	10.9	11.3	9.5	8.5	7.3	7.4	7.7	6.7	9.2	8.8	9.0	9.3	8.8	11.5	13.8	8.8	9.4	9.5	9.5	7.9	9.7	10.2	10.1	10.3
Average	20.5	19.0	16.9	20.0	23.3	24.7	26.3	25.8	22.9	21.6	20.4	20.6	18.9	19.8	20.8	20.7	19.3	19.0	21.1	19.6	17.6	15.6	14.6	13.3	15.6	14.3	15.1	16.2
Central America																												
Costa Rica	7.4	7.9	8.4	7.2	11.3	9.8	12.7	10.3	8.4	8.3	15.1	6.1	5.4	6.8	5.9	5.0	5.1	4.0	4.1	4.5	4.7	4.3	4.3	4.4	4.4	4.4	4.4	4.4
Cuba	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dominican Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21.1	27.0	22.7	22.8	20.3	17.9	17.7	24.1
El Salvador	18.4	17.5	16.6	16.8	16.3	14.5	14.3	13.1	10.0	11.4	9.7	10.4	11.2	9.8	9.7	11.0	9.6	10.5	10.5	10.3	10.3	9.4	9.5	9.1	12.8	12.2	10.4	10.1
Guatemala	--	17.1	16.4	18.7	17.4	16.5	13.7	19.1	11.6	10.8	8.5	10.7	10.5	10.8	10.0	13.0	9.4	9.3	8.6	7.8	8.5	9.2	10.0	9.4	8.3	10.0	10.3	10.8
Haiti	26.2	20.6	20.1	19.5	22.9	23.6	23.9	25.7	26.3	23.3	18.1	17.8	16.1	16.0	13.6	17.4	14.7	14.7	13.9	19.1	18.6	18.2	23.6	23.2	20.7	21.9	25.4	26.0
Honduras	--	23.8	17.5	18.6	17.4	20.7	17.5	23.5	22.0	23.7	26.5	23.8	17.4	18.3	15.4	12.6	11.6	12.0	13.4	11.7	11.5	11.9	10.0	18.1	17.9	18.6	10.3	10.6
Mexico	15.8	15.5	18.3	16.7	15.4	16.3	14.6	14.1	13.2	12.9	10.6	8.9	10.0	8.0	6.8	9.3	5.7	7.3	7.3	8.1	7.5	7.8	6.7	8.0	8.2	7.8	10.5	11.0
Nicaragua	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20.3	16.9	16.8	17.1	18.6	16.9	15.7	15.3	--
Panama	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Average	17.0	17.1	16.2	16.3	16.8	16.9	16.1	17.6	15.3	15.1	14.8	13.0	11.8	11.6	10.2	10.9	9.4	9.6	9.6	11.7	12.3	13.1	13.0	14.2	13.7	13.6	13.0	14.0
Latin American Average	18.8	18.1	16.6	18.2	20.1	20.8	21.2	21.7	19.1	18.4	17.6	--	16.8	15.7	15.5	15.8	14.4	14.3	15.4	15.7	15.0	14.4	13.8	13.8	14.7	14.0	14.1	15.1

NOTE:

All percentages were computed using local currencies on a current-value basis. All data were taken from the United Nations Statistical Yearbook except as noted in Table 1. They were derived from final actual expenditures except, again, as noted in Table 1. Costa Rican data for the period 1959 to 1965 were deflated in accordance with the formule noted in Table 1.

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Table 6

LATIN AMERICAN DEFENSE EXPENDITURES AS A PERCENTAGE OF TOTAL GOVERNMENTAL
EXPENDITURES AVERAGED BY MAJOR TIME PERIODS, 1938-1965[a]

	Pre-World War II	Wartime	Early Post-war Years	1950s	Early 1960s
South America					
Argentina	18.2	30.7	30.7	19.9	16.0
Bolivia	--	--	--	11.2	2.9
Brazil	26.4	40.9	32.4	27.8	17.6
Chile	21.5	27.4	20.7	18.9	10.7
Colombia	14.6	11.3	14.0	20.9	20.7
Ecuador	--	--	--	20.7	15.2
Paraguay	--	--	--	27.5	22.8
Peru	22.7	30.2	23.1	17.8	16.3
Uruguay	--	--	--	--	--
Venezuela	10.8	10.1	7.3	9.8	9.6
Average	19.0	25.1	21.4	19.4	14.7[b]
Central America					
Costa Rica	7.7	11.0	9.5	4.9	4.4
Cuba	--	--	--	--	--
Dominican Republic	--	--	--	24.1	20.9
El Salvador	17.3	14.6	10.4	10.2	10.7
Guatemala	17.4	16.7	13.4	9.4	9.8
Haiti	21.6	24.0	21.4	16.2	23.5
Honduras	20.0	19.8	24.0	13.6	14.3
Mexico	16.6	15.1	11.4	7.8	8.7
Nicaragua	--	--	--	--	--
Panama	--	--	--	--	--
Average	16.8	16.9	14.5	12.3	13.2
Latin American Average	17.9	21.0	18.0	15.9	14.0[c]

NOTES:

[a]Data computed from Table 4.

[b]Average pulled down by exceedingly low Bolivian figure. With Bolivia excluded, the average is 16.2

[c]Average pulled down by exceedingly low Bolivian figure. With Bolivia excluded, the average is 14.7.

figure for Brazil, of course, reflects the cost to Brazil of its ver"
substantial assistance to the United States during World War II. Some
(and this could be considerable) of t.. .... however, may be
accounted for by the internal political difficultie in both countries:
both had internal-political problems in the period 343-1945, which
may have accentuated the already strong bargaini· position of the
defense establishment.[1]

The Second Proposition: This High Expenditure Level Has Persisted for Many Years

There is no doubt that since the war there has been in Latin
America as a whole a persistent, significant <u>downward</u> trend in the
military's share of the budget. The wartime average of 21.0 percent
declined to 1C.0 percent for the early post-war periods, to 15.9 per-
cent in the 1950s, and to 14.0 percent in the first five years of the
1960s (Table 6).

In the South American group, the defense share dropped to 21.4
percent during the early post-war years, dropped again slightly to
19.4 percent in the 1950s, and still again sharply to 14.7 percent
during the first half of the 1960s. Looking at the Central American
group, we see that the decline was less dramatic but still persistent:
down to 14.5 percent in the early post-war years, to 12.3 percent in
the 1950s, but up slightly to 13.2 percent in the first half of the
1960s.

What makes the validity of the second proposition even more
doubtful is the dramatic secular downward trend in several of the
Latin American countries (Tables 5 and 6). Specifically, in the South
American group there has been a long-term downward trend in the mili-
tary's share in Chile and Peru. True, from time to time this trend
reverses itself; but the downward direction is clearly dominant,
particularly through the 1950s and the early 1960s.

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[1]See Appendix B.

In two cases the long-term trend of the military share of expenditures has been almost perfectly flat at a very low level: Venezuela and Mexico (though in the latter it has been turning up again lately). With respect to both these countries (especially the former), however, it should be remembered that defense expenditures, in absolute terms, have been rising steadily. (See Sect. II.)

Finally, only six countries show a high level of defense expenditures persisting to the present: Brazil, Colombia, Paraguay, Peru, Haiti, and the Dominican Republic. Of these, Paraguay, of course, is a classic case -- but even here we find evidence that this high-level share has been declining somewhat in the 1960s.

The Third Proposition: Upward Variations in Defense Spending Are Associated with Internal Conflict

To test this proposition, we made a detailed study of defense spending in eleven Latin American countries.[1] Nine countries[2] were omitted from the study either because they had experienced no unscheduled changes of government, or because of a lack of defense-expenditure data, or both.

As a first approximation, the date of each unscheduled or illegal change of government -- as listed in Appendix B -- was determined for each of the eleven countries. For each incident, the behavior of the defense shares (percentage increases or decreases) was calculated (from Table 5) with respect to the previous year for: the year in which the incident occurred and the two years following the incident. In a few cases, where several unscheduled changes of government occurred very close together in time, the several incidents were grouped and treated as one.[3]

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[1]Argentina, Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Peru, and Venezuela.

[2]Bolivia, Chile, Costa Rica, Cuba, Mexico, Nicaragua, Panama, Paraguay, and Uruguay.

[3]For example, Haiti had unscheduled changes of government in December 1956 and February, April, May, and June 1957 -- five incidents within a seven-month period. Here they were treated as a single incident.

Having thus calculated three-year defense-expenditure behavior data (percentage increase or decrease) for each incident, we disregarded the magnitude of the change and concentrated only on the direction of the change. The test applied, then, was that if the year of the incident, the following year, and the year following it showed increases (however small) in the share going to defense, this persistent increase lent support to the popular belief that illegal changes in government produce increases in the share going to the military. Similarly, a persistent decrease in the share going to defense cast doubt on the belief.

The results were as follows: In five cases, there were persistent increases in the share going to defense; in ten cases, there were persistent decreases; and in eighteen cases, the results were mixed or inconclusive. In no case did we find a consistent pattern of increase for all incidents. In only one case, Haiti, did we find the opposite: all incidents being characterized by progressive decreases in the share going to the military.

As a second approximation, we assumed that proponents of the proposition that rising defense expenditures are associated with ir er-nal conflict really meant increases in the absolute amount of dollars going to defense (despite their references to "percentages of total government expenditures"). With this in mind, we went through the same analysis using Table 1 instead of Table 5.

The results of this test came out quite differently. Ir eleven cases, the absolute amount going to the defense establishment increased during the year of the incident and in each of the following two years. In only three cases were there persistent decreases. As in the previous test, there was a large number (16) of mixed results.[1]

Although this outcome lends some support to the notion that political change is associated with increasing defense expenditures (not

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[1] That there were thirty-four cases in the first approximation and only thirty in the second is due to the fact that in four cases, although we had data in local currency, we did not have price-index data to convert them to constant U.S. dollars.

shares), several cautionary comments are necessary to an interpretation
of the eleven positive cases. First, when one adds, to the direction-
of-change data, figures for the magnitude of the change, the increases
are frequently trivial. Second, one must bear in mind the existence,
in most countries, of long-term increases in defense expenditures.
Third, as we tried to show in the Venezuelan case study (see Sect. III),
so many complicated factors are included that simple correlations of
this sort can be misleading. Finally, there is the presence of the
large number of mixed cases.

The Fourth Proposition: Low Defense Spending Is Associated with a Dying Militarism

The notion that a low military share means a dying militarism is
clearly true with respect to Mexico after 1938, Bolivia after 1952, and
Costa Rica after 1948.[1] Further, despite large data gaps, Uruguay
probably should be included in the group. Again, the definite downward
trends in military shares in the past five to eight years should be
taken into account -- for example, in Chile since 1957.

Finally, there is Venezuela's consistently low level of military
share, which has endured despite a vigorous defense establishment and
despite substantial and frequent changes in the political structure of
the government.[2] Throughout the period encompassed by this study (with
the exception of 1955-1956), Venezuelan defense expenditures as a per-
centage of total government expenditures remained very stable at a
surprisingly low level (generally between 8 and 10 percent). Why this
is so is not clear. The only comment in explanation of this phenomenon
is given by Lieuwen:

> The military's representative in the cabinet, the Min-
> ister of Defense, sees to it that the armed forces' customary
> generous share of the national budget is not revised downward.
> It is a price the civilian authorities must pay to ensure
> their own tenure in office [17, p. 157; emphasis added].

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[1]But note the sizable increases in levels in Mexico in 1964 and 1965.

[2]The reader is referred back to the discussion in Sect. III on
Venezuela's internal political instabilities.

This interpretation seems questionable on many scores. It is
hard to believe that a gentleman's agreement of this sort could endure
for three decades in the face of the internal shifts in Venezuela, the
rapid and frequent changes in the heads of state and the ministers of
defense, the occasional bitter intraservice struggles (particularly
regarding the role of the National Guard), the existence of a Parlia-
ment with clear and ultimate authority to determine the size of the
defense budget, and so on. (Here, incidentally, one might also question
Lieuwen's use of the world "generous." In terms of the percentage going
to the military establishment, the share is anything but generous in
comparison with that for such countries as Argentina or Brazil.) But
while this particular interpretation may be suspect, it is not likely
to be replaced until adequate research on the subject has been conducted.

CONCLUDING OBSERVATIONS

This discussion of military expenditures as a percentage of total
government expenditures concludes with some general observations.

First, although we believe the correlation analysis to be an
improvement over past efforts, it still leaves much to be desired. For
one thing, better display series of year-by-year, country-by-country
political activity (internal certainly, and, possibly but to a much
lesser extent, external -- for example, border conflicts) are needed.
For another, the crude assembly of unscheduled changes in the leader-
ship of the central government (Appendix B) needs considerable refinement.

Second, once better conflict series are developed, more sophisti-
cated correlation techniques should be applied than the ones used here.

Third, the significance of stable and unstable patterns of behavior
of military shares (see Fig. 4) needs careful attention. For example,
as noted above, the military shares in Venezuela show persistent
stability at a low level. On the conceptual level, there is a question
as to whether it is really "bad" to have this stability in defense
expenditures in Venezuela (and in some other countries). Is it neces-
sarily bad that such a condition is achieved and maintained by a kind
of gentleman's agreement? Is it good or bad when too strict an
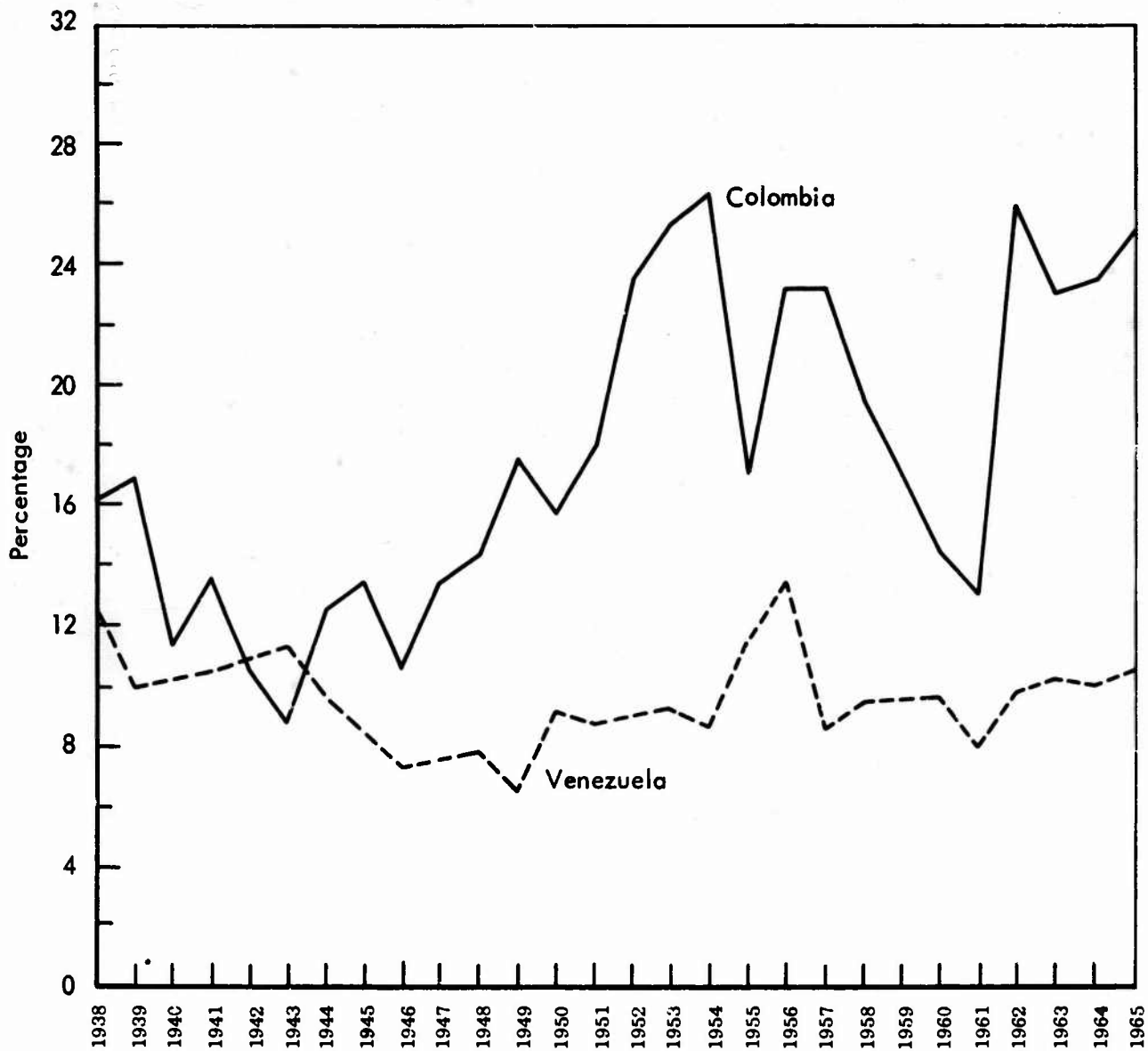
Fig. 4—Defense expenditures as a percentage of total government
expenditures over time in two South American countries:
Colombia (a highly unstable pattern) and Venezuela
(a relatively stable pattern)

attention to the percentage share going to the military blinds the
observer to the flow of actual dollars to the defense establishment?
(See Sect. II.) Should one prefer an unstable military-share situation,
like the one in Colombia, especially when it tends to obscure the
fluctuating yet secular upward trend in defense expenditures, measured
in absolute amounts?

Finally, it is interesting to look at correlations between size
of annual country defense expenditures and their percentage of total
governmental expenditures. Ranking the six largest defense spenders
by (a) descending magnitude of average annual dollar expenditure in
the 1960s and (b) descending size of the defense share of total
government expenditures, we obtain the following:

	(a) Rank order of magnitude of defense expenditures	(b) Rank order of size of share of total gov't expenditures going to defense
Argentina	1	3
Brazil	2	2
Venezuela	3	5
Mexico	4	6
Chile	5	4
Colombia	6	1

Two points stand out: first, the two countries that have been
increasing annual defense expenditures at the fastest rate and that
promise to be the largest defense spenders in Latin America within a
few years (that is, Venezuela and Mexico) rank lowest in the share of
total government expenditures going to the defense establishment. No
doubt this is due in large part to the fact that both are growing
faster in gross national product and gross national product per capita
than are other countries in Latin America. Second, it should be noted
that Colombia, the lowest spender in absolute terms, is the country
where the military's share of total government expenditures is greatest.
This is largely due to the fact that Colombian defense expenditures
have been rising rapidly and at a rate incommensurate with its growth
rate in gross national product.

When the level-of-spending analysis was extended to cover eight additional Latin American countries, the same correlations were found. For example, Paraguay, which ranked thirteenth in average annual dollar defense expenditures, ranked first in the size of the share of total governmental expenditures going to the defense establishment. The only interesting difference was that Bolivia, which ranked lowest in the level of annual dollar expenditures, also ranked lowest in the share of total government expenditures going to the military. Considering its limited resources -- essentially at the poverty level -- one would perhaps expect Bolivia to spend as little as possible on its defense establishment. Yet, given its historic border conflicts, culminating in the violent war with Paraguay in 1938 (see Appendix C), and its recent history of unscheduled changes of government, in most of which the military was heavily involved (see Appendix B), one would, on the other hand, expect the share of the government's resources going to the defense establishment to have been much larger. So once again, we are led back to the complicated questions posed in Sect. III, and to the need for more and better analysis.

A FEW INTERNATIONAL COMPARISONS

The following comments grow out of the discussion of questionable propositions, above, and the data in Tables 6 and 7:

1. Comparison with a sample of European, Asian, and African countries fails to bear out the notion that Latin American expenditures are disproportionately high. The Latin American sample averages are very much lower than the European sample averages for all major time periods (Table 7). They are slightly lower than the Asian sample averages for all major time periods except the war years. They are higher than the African sample averages for all periods, and would be significantly higher throughout the period of Egypt were dropped from the African sample.

2. With respect to the proposition that this "high" expenditure level has persisted for many years, Table 7 indicates that the samples for South American and for Latin America as a whole have, like the

Table 7

SELECTED NON-LATIN-AMERICAN-COUNTRY DEFENSE EXPENDITURES AS A PERCENTAGE OF TOTAL
GOVERNMENTAL EXPENDITURES, AVERAGED BY MAJOR TIME PERIODS, 1938-1965

(Latin American average percentages included for purposes of comparison)

Country	Average, Pre-war Years	Average, War Years	Average, Early Post-war Years	Average, 1950s	Average, Early 1960s
European Sample					
Portugal	28.8	37.1	22.9	23.2	32.0
Spain	--	--	32.7	27.1	17.5
Sweden	39.2	47.3	19.2	20.3	17.7
Switzerland	61.4	55.1	24.9	37.1	32.8
Average %	43.1	46.5	24.9	26.9	25.0
Asian Sample					
Ceylon	6.1	7.6	0.9	2.5	3.5
India	34.8	18.2	44.6	22.4	18.5
Iran	21.3	23.1	23.4	22.0	25.3
Iraq	19.1	25.1	20.8	23.7	27.3
Average %	20.3	18.5	22.4	17.7	18.7
African Sample					
Ghana	--	0.0	--	4.7	7.6
Sudan	8.2	--	--	7.4	10.1
U of S Africa	3.3	--	6.7	6.6	9.4
Egypt	13.5	10.8	11.4	23.1	23.8
Average %	8.3	10.8	9.1	10.5	12.5
South American Average %	19.0	25.1	21.4	19.4	14.7
Central American Average %	16.8	16.9	14.5	12.3	13.2
Latin American Average %	17.9	21.0	18.0	15.9	14.0

European sample, been trending downward for some time. The Asian sample, like the Central American sample, shows a long-term downward direction with an upward turn during the 1960s. (The African sample (with or without Egypt), it should be noticed, has moved steadily upward from a low average percentage at the end of World War II.) In the case of emerging countries, one would expect to find upward trends, reflecting internal conflicts or efforts to prevent their occurrence. Such is perhaps seen in the performance of Ceylon, which received its independence from Great Britain in 1947. One notes the almost non-existent share of defense expenditures in the early postwar years, followed by a steady increase in the 1950s and 1960s.

Two additional observations should be made apropos of the data in Table 7:

o There is a general, secular trend away from a Smithian economy and toward a "welfare" economy. See, for example, Switzerland, Sweden, and India, where less and less of the total of annual government expenditures is going to the defense establishment, and more and more to providing goods and services that in another era would have been provided -- if provided at all -- by the private sector of the economy.

o Border conflicts may well indeed result in increased shares of total government expenditures going to the defense establishment. See the rise in the share going to the defense establishment in the case of Egypt.

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V. SOME MEASURES OF THE BURDEN OF LATIN AMERICAN DEFENSE EXPENDITURES

In the preceding sections we have looked at the behavior of Latin
American defense expenditures in absolute terms (that is, measured in
constant U.S. dollars) and as a percentage of total government expendi-
tures. We have looked at this behavior as a function of time, over a
27-year period, as it manifests itself in individual countries of Latin
America, as it appears to relate to internal and external conflicts in
selected countries, and as it compares with the defense-expenditure
behavior of sample countries in other parts of the world. It now
remains to assess the burden of defense expenditures in Latin America
on the countries involved.

As is well known, both on the conceptual and on the practical
(data reliability and availability) level, there is no really satis-
factory way of measuring this burden. We have tried experimenting with
a variety of possible measures -- such as defense expenditures per
capita, per capita defense expenditures vs. per capita gross national
product, and so on -- and have decided that, for all its limitations,
we would rely in this Memorandum solely on defense expenditures as a
percentage of gross national product.

In what follows, we will examine defense expenditures as a per-
centage of gross national product in the Latin American area for the
period 1950-1964. The examination begins with 1950 because of the
impossibility of obtaining satisfactory gross-national product data
for earlier years; it ends with 1964 because the data for 1965-1966
are still scanty and preliminary. The data are summarized in Table 8.

The second part of this section will compare these findings for
Latin America with some data on defense expenditures as a percentage
of gross national product in other countries of the world.

DEFENSE EXPENDITURES AS A PERCENTAGE OF GROSS NATIONAL PRODUCT IN
LATIN AMERICA, 1950-1964

Looking at Latin America as a whole (Table 8), we see that defense
expenditures as a percentage of gross national product rose in a

Table 8

DEFENSE EXPENDITURES AS A PERCENTAGE OF GNP IN EIGHTEEN LATIN AMERICAN COUNTRIES, 1950-1964

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	Average, 1950s	1960	1961	1962	1963	1964	Average, Early 1960s
South America																	
Argentina	3.1	3.1	3.3	3.2	3.1	2.4	2.8	2.3	2.3	2.4	2.8	2.7	2.5	2.5	2.5	2.5	2.5
Bolivia	--	--	--	--	--	--	0.5	0.6	0.6	0.8	0.6	1.1	1.2	1.1	1.3	--	1.2
Brazil	2.5	2.5	2.6	2.6	2.3	2.6	3.0	3.3	3.1	2.5	2.7	2.3	2.0	2.1	2.1	--	2.1
Chile	2.4	2.4	--	3.3	1.9	3.3	3.2	3.2	2.8	2.2	2.7	2.2	2.2	2.2	1.8	1.7	2.0
Colombia	1.0	1.2	1.6	2.0	2.3	2.1	1.9	1.6	1.5	1.2	1.6	1.2	1.4	2.0	2.3	--	1.7
Ecuador	--	--	1.3	2.0	--	2.7	2.7	2.5	2.3	4.0	2.2	2.5	2.3	2.1	1.8	2.0	2.1
Paraguay	--	--	--	--	--	--	2.2	2.0	--	--	2.1	--	1.6	1.7	1.7	--	1.7
Peru	1.1	1.3	1.3	--	--	1.3	2.2	2.1	--	--	1.6	--	2.3	2.3	2.7	2.8	2.5
Uruguay	--	--	--	--	--	--	--	--	--	0.8	0.8	0.9	1.1	--	--	--	1.0
Venezuela	1.7	1.6	1.7	1.6	1.4	2.1	2.3	1.7	2.5	2.7	1.9	2.5	2.0	1.9	2.2	2.0	2.1
Average	2.0	2.0	2.0	2.5	2.2	2.4	2.3	2.1	2.2	1.8	2.1	1.9	1.9	2.0	2.0	2.2	2.0
Central America																	
Costa Rica	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Dominican Republic	--	--	--	--	--	--	--	--	5.5	6.6	6.0	5.0	4.8	4.3	4.1	4.2	4.5
El Salvador	1.2	--	--	--	1.6	1.6	1.5	1.6	1.5	1.3	1.5	1.3	1.2	1.3	1.2	--	1.3
Guatemala	0.8	0.7	0.8	0.8	0.8	0.9	1.0	1.0	1.0	1.0	0.9	1.0	0.9	0.8	0.8	0.8	0.9
Haiti	--	--	1.5	--	--	1.8	1.8	1.9	--	--	1.8	--	--	--	--	--	--
Honduras	1.3	1.3	1.3	1.1	1.1	1.0	1.5	1.3	1.4	1.2	1.3	1.1	1.8	1.7	1.8	1.2	1.5
Mexico	0.9	0.8	0.7	0.8	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Nicaragua	--	--	--	--	--	--	--	2.5	--	--	2.5	--	2.0	1.8	1.7	--	1.8
Average	0.9	0.9	1.0	0.8	0.8	1.1	1.2	1.4	1.8	1.9	1.2	1.6	1.7	1.6	1.5	1.5	1.6
Average, Latin America	1.5	1.6	1.5	1.8	1.6	1.8	1.9	1.8	2.0	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8

somewhat erratic fashion from a low of 1.5 percent in 1950 to a high of
2.0 percent in 1958; they averaged 1.7 percent for the total period.
In the early 1960s the percentage was stabilized at 1.8 percent.

Defense expenditures as a percentage of gross national product for
South America as a whole rose from a low of 2.0 percent in the early
1950s to a high of 2.5 percent in 1953, behaved erratically in the
succeeding years, and culminated in a low of 1.8 percent in 1959 --
averaging 2.1 percent for the period. In the early 1960s, the percent-
age rose slowly but steadily from 1.9 percent in 1960 to a high of 2.2
percent in 1964 -- an average of 2.0 for the period. Throughout the
period, South American average percentages generally exceeded Central
American averages and (obviously) total Latin American averages.

Looking at Central America, we observe that during the 1950s there
was a secular trend upward from a low of 0.9 percent in 1950 and 1951
to a high of 1.9 percent in 1959; the average for the decade was 1.2
percent. In the early 1960s, there was a steady but slow movement down-
ward, resulting in an average of 1.6 percent for the period. However,
unlike South America as a whole, where the regional average for the
1960s showed a slight decline from the average for the 1950s, the
early-1960s average for Central America was more than trivially above
the average for the 1950s.

Let us examine possible trends over the period 1950-1964 for
fifteen individual countries.[1]

One country (Nicaragua) trended persistently downward throughout
the period. Three others (Argentina, the Dominican Republic,[2] and El
Salvador) trended downward in the 1950s, but stabilized at new, lower
levels in the early 1960s. Two countries (Bolivia and Peru) trended
persistently upward. Colombia generally trended downward until the
end of 1961; for the succeeding years, the trend turned abruptly and

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[1]For three countries (Haiti, Uruguay, and Paraguay) the data are
too sparse for generalization.

[2]In the case of the Dominican Republic, this "trend" is subject to
large reservations because of the scantiness of data for most of the 1950s.

sharply upward. Three other countries (Costa Rica, Guatemala, and Mexico), by contrast, maintained relatively constant percentages -- at very low levels -- throughout the fifteen years.

Five countries (Brazil, Chile, Ecuador, Honduras, and Venezuela) showed no particular trends. Honduras' figures behaved erratically throughout the period; Chile and Ecuador's figures behaved erratically in the 1950s but trended steadily downward in the early 1960s; and Brazilian and Venezuelan figures were erratic in the 1950s but stabilized at fairly constant levels in the early 1960s.

During the 1950s, nine countries exceeded the Latin American average for defense expenditures as a percentage of gross national product: Argentina, Brazil, Chile, the Dominican Republic, Ecuador, Haiti, Nicaragua, Paraguay, and Venezuela. The remaining nine were below the average, with Bolivia, Costa Rica, Guatemala, Mexico, and Uruguay significantly below for the 1950s. During the 1960s, seven countries exceeded the Latin American average: Argentina, Brazil, Chile, the Dominican Republic, Ecuador, Peru, and Venezuela. The rest were below the average -- and once again the five countries named above were significantly below the average.

Between the two periods, only one country changed its relative position with respect to the Latin American average: Peru. This country, which in the 1950s was just below the Latin American average, exceeded the Latin American average in the early 1960s by a sizable margin.

SOME INTERNATIONAL COMPARISONS

We have also tried to compare the burden of defense expenditures in Latin America with that of other countries of the world. This was done in two ways: (1) for a single year (~1959) we looked at some sixty-two countries diversified in geography and economic development, and (2) for ten selected non-Latin American countries we computed defense expenditures as a percentage of gross national product for the period 1950-1964.

Table 9 summarizes our first comparison. For all sixty-two
countries, the mode -- or most frequent value -- is 3.0 percent, with
twenty-seven countries above the mode and thirty below. Of the fifteen
underdeveloped countries above the mode, only two (the Dominican
Republic at 6.6 percent and Peru at 3.3 percent) are Latin American
countries. Of the twenty-one underdeveloped countries below the mode,
sixteen are Latin American countries.

Looking at it another way, the arithmetic mean for all sixty-two
countries is 3.5 percent. Of the twelve underdeveloped countries above
the mean, only one is a Latin American nation (the Dominican Republic).
Of the twenty-seven underdeveloped countries below the mean, seventeen
are Latin-American countries. And of these seventeen, twelve are con-
siderably below the mean -- that is, their defense expenditures as a
percentage of gross national product ranges from 0.5 to 2.2 percent.

Finally, of the sixty-two countries in the sample, it is inter-
esting to note that the six heaviest defense-spending countries in
Latin America rank as follows: Brazil, 34th; Chile, 36th; Argentina,
41st; Venezuela, 44th; Colombia, 55th; and Mexico, 60th. All six, of
course, had defense expenditures as a percentage of gross national
product well below the mode (3.0 percent) and the arithmetic mean
(3.5 percent).

In Table 9, the data apply to a single year: ~1959. In Table 10,
we look at fourteen countries for a fifteen-year period. In all cases
the selection of the particular countries to be examined was in part
influenced by the availability of data for the period. Beyond this
criterion, the particular countries were selected as follows: The
six Latin American countries were chosen because they have historically
been the biggest def se spenders. The four European countries were
selected on two bases: first, all four have been very little involved
in defense expenditures attributable to the East-West confrontation
in Europe; and, second, two were considered "developed" and two
(Portugal and Spain) were considered "less-developed" by European
standards of development. Choice of the four Afro-Asian countries
was dictated by the availability of data; nevertheless, the Union of

Table 9

MILITARY EXPENDITURES AS A PERCENTAGE OF NATIONAL PRODUCT FOR SIXTY-TWO COUNTRIES

(Date: late 1950s[a])

Country[b]	Military Expenditures as a Percentage of National Product[c]
TAIWAN	10.8
United States	9.8
YUGOSLAVIA*	9.0
KOREA	7.4
BURMA	7.3
Soviet Union*	6.9
DOMINICAN REPUBLIC**	6.6
United Kingdom	6.5
ISRAEL	6.3
France	6.2
SYRIAN ARAB REPUBLIC	5.6
GREECE	5.4
Sweden	4.7
INDONESIA	4.6
Canada	4.6
BULGARIA*	4.5
MAINLAND CHINA*	4.4
Netherlands	4.3
CAMBODIA (1957 only)	4.0
West Germany	3.7
Poland*	3.7
Norway	3.4
PERU	3.3
Italy	3.2
THAILAND	3.2
PORTUGAL	3.1
Belgium	3.1
Switzerland	3.0
PAKISTAN	3.0
LEBANON	3.0
FEDERATION OF MALAYA	3.0
Australia	3.0
Denmark	2.8
BRAZIL	2.8
TURKEY	2.6
CHILE	2.6
SPAIN	2.5
NICARAGUA**	2.5
East Germany*	2.5
INDIA	2.4

Table 9, continued

Country	Military Expenditures as a Percentage of National Product
ARGENTINA	2.4
ECUADOR	2.2
New Zealand	2.2
VENEZUELA	2.2
PARAGUAY**	2.1
Hungary*	1.9
HAITI**	1.8
Finland	1.7
PHILIPPINES	1.6
Japan	1.6
Austria	1.5
EL SALVADOR	1.5
GUATEMALA	1.5
Ireland	1.5
COLOMBIA	1.4
HONDURAS	1.3
CEYLON	1.0
BOLIVIA**	0.8
URUGUAY**	0.8
MEXICO	0.8
Union of South Africa	0.8
COSTA RICA	0.5

NOTES:

[a]With the exception of the entries for Paraguay, Dominican Republic, Nicaragua, Haiti, Bolivia, and Uruguay, the data were obtained from the United Nations Department of Economic and Social Affairs, Economic and Social Consequences of Disarmament (E/3593/Rw. 1), New York, 1962, pp. 54-63. For the six countries mentioned, the data were developed from Table 5. For these six countries the percentages were computed for 1959, except in the case of Paraguay and Nicaragua, where the 1950 averages were employed. For the other 56 countries, the percentages (except where otherwise specified) are average percentages for the years 1957-1959, inclusive.

[b]Countries spelled completely in capital letters are ones generally categorized as less-developed countries. Countries spelled completely in capital letters and indented are Latin American countries.

[c]The term National Product unhappily has three different statistical meanings in this study. For those countries not asterisked, the meaning of National Product is "Gross Domestic Product" as defined by U.N. statistical practice. For those countries having one asterisk, the meaning of National Product is "Net Domestic Product" as defined by the reporting countries and as required by U.N. statisticians.

Table 9, continued

The main differences between Gross and Net Domestic Product are two-fold: (a) gross includes output originating in both material production and services, whereas net includes only material production; (b) gross depreciation has not been deducted from gross investment or income, whereas in net it has been deducted. The result of all this is to bias slightly upward the percentage for the one-asterisked countries. (See [27], p. 54.)

For the countries with two asterisks, the term National Product means Gross National Product, as generally defined and computed in this country.

Table 10

DEFENSE EXPENDITURES AS A PERCENTAGE OF GNP, 1950-1964: A COMPARISON OF THE SIX HEAVIEST LATIN AMERICAN DEFENSE SPENDERS AND A SAMPLE OF EUROPEAN AND AFRO-ASIAN NATIONS

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	Average, 1950s	1960	1961	1962	1963	1964	Average, Early 1960s
Latin American Sample																	
Argentina	3.1	3.1	3.3	3.2	3.1	2.4	2.8	2.3	2.3	2.4	2.8	2.7	2.5	2.5	2.5	2.5	2.5
Brazil	2.5	2.5	2.6	2.6	2.3	2.6	3.0	3.3	3.1	2.5	2.7	2.3	2.0	2.1	2.1	--	2.1
Venezuela	1.7	1.6	1.7	1.6	1.4	2.1	2.3	1.7	2.5	2.7	1.9	2.5	2.0	1.9	2.2	2.0	2.1
Mexico	0.9	0.8	0.7	0.8	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Chile	2.4	2.4	--	3.3	1.9	3.3	3.2	3.2	2.8	2.2	2.7	2.2	2.2	2.2	1.8	1.7	2.0
Colombia	1.0	1.2	1.6	2.0	2.3	2.1	1.9	1.6	1.5	1.2	1.6	1.2	1.4	2.0	2.3	--	1.7
Average	1.8	1.9	2.0	2.3	1.9	2.2	2.3	2.1	2.2	1.9	2.1	1.9	1.8	1.9	1.9	1.7	1.8
European Sample																	
Portugal	2.7	2.5	2.6	3.1	3.4	3.4	3.3	3.0	3.1	3.3	3.0	3.4	5.8	6.4	6.1	--	5.4
Spain	3.4	2.4	2.9	--	--	2.2	2.2	2.2	1.9	1.9	2.4	1.9	2.0	2.2	2.0	2.0	2.0
Sweden	3.5	3.6	4.2	4.9	4.9	4.9	4.7	4.6	4.8	4.7	4.5	4.5	4.2	4.4	4.5	4.4	4.4
Switzerland	2.5	3.0	3.8	3.2	2.7	2.7	2.3	3.0	3.2	2.9	2.9	2.5	2.6	2.7	2.6	2.6	2.6
Average	3.0	2.9	3.4	3.7	3.7	3.3	3.1	3.2	3.3	3.2	3.3	3.1	3.7	3.9	3.8	3.0	3.5
Afro-Asian Sample																	
Union of South Africa	0.9	0.8	1.6	1.4	1.1	1.0	1.0	1.1	1.1	0.7	1.1	0.7	0.8	1.3	1.9	1.6	1.3
Egypt	4.0	3.3	4.8	4.2	--	5.0	7.6	7.5	6.2	--	5.3	--	--	--	6.1	--	6.1
India	1.7	1.8	1.9	1.8	1.9	2.0	1.7	1.9	2.2	2.2	1.9	1.9	1.9	2.0	2.8	--	2.2
Iran	3.6	3.5	3.2	4.8	7.1	5.0	4.4	6.9	6.9	6.9	5.2	7.4	7.9	7.5	8.4	9.8	8.2
Average	2.5	2.4	2.9	3.1	3.4	3.3	3.7	4.4	4.1	3.3	3.3	3.3	3.5	3.6	4.8	5.7	4.2

South Africa was deliberately included so that the sample would have
at least one country that by African standards could be considered to
be developed. India was deliberately included in recognition of the
fact that she spends little on defense and that her gross national
product is on the whole quite low.

From an inspection of Table 10, we observe the following:

o Year in and year out, the averages for the European and
   Afro-Asian groups have exceeded that for the Latin
   American group by a not-trivial margin. In other words,
   as groups they typically assign a larger percentage of
   their gross national product to defenses than does the
   Latin American sample.

o No single country in the two non-Latin American groups
   spent less of its gross national product on defense
   than did Mexico. The Union of South Africa alone
   approaches the Mexican level.

o Whereas the Latin American group has been slowly and
   somewhat erratically assigning a slightly smaller per-
   centage of its gross national product to defense over
   the years, the secular trend in the other groups has
   been upward.

The commonly voiced opinion that defense expenditures involve a
heavier burden on Latin American countries than on other countries
(particularly underdeveloped countries) is subject, then, to
considerable doubt.

VI. DEFENSE EXPENDITURES PER MEMBER OF THE ARMED FORCES

To provide an estimate of what it costs to feed, clothe, pay, and
equip (along a materiel spectrum from knives to aircraft carriers)
Latin American defense establishments, rough calculations were made of
defense expenditures per member of the armed forces for three selected
years (1955, 1960, and 1965). (See Table 11.)[1] Although the data for
1955 are included in Table 11, they are disregarded in the text that
follows, because (as discussed in Appendix D) the military manpower
data from which they were derived are of dubious quality.

The first thing that strikes one in looking at Table 11 is the
very wide spread, from country to country, in expenditures per member
of the armed forces. In 1960, the spread is from a low of $267 in
Bolivia and $438 in Paraguay to a high of $7591 in Venezuela. In
1965, the spread is not quite so dramatic yet still sizable: from a
low of $500 in Paraguay to $5911 in Venezuela. Looking only at the
six big defense-spending countries, we note that, in 1960, the spread
is from a low of $1204 in Brazil to the high of $7591 in Venezuela.
Similarly in 1965, the spread is from a low of $1363 in Brazil to the
high of $5911 in Venezuela. If and when a permanent Organization of
American States Peace Force is organized, these differences should be
recognized and taken into account. Table 12 gives some indication of
the results when different costs of equipping and fielding a force
are not taken into account.[2]

The second thing that strikes one is that in comparing defense
expenditures for 1960 and 1965, three distinct classes emerge. The
first class (Ecuador and Costa Rica) comprises countries where there
has been essentially no change in expenditures per member of the
armed forces. The second class comprises countries where expenditures

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[1] The manpower figures used in computing the data shown in Table
11 are derived in Appendix D. The defense expenditures used in the
computations are from Table 1.

[2] Although, admittedly, the OAS Peace Force for the Dominican
Republic crisis in 1965 was hurriedly improvised.

Table 11

DEFENSE EXPENDITURES PER MEMBER OF THE ARMED FORCES:
1955, 1960, 1965

(1960 U.S. dollars)

Country	1955	1960	1965
South America			
Argentina	1858	2178	2114
Bolivia	--	267	--
Brazil	2634	1204	1363[a]
Chile	2974	2524	2144
Colombia	5453	2057	2438
Ecuador	919	1233	1233
Paraguay	--	438	500[a]
Peru	2051	1002	811[a]
Uruguay	--	1612	--
Venezuela	6108	7591	5911
Central America			
Costa Rica	1833	1833/~2000[b]	1917/~2000[b]
Cuba	--	--	--
Dominican Republic	--	1856	1539
El Salvador	899	897	1288
Guatemala	857	1143	1763
Haiti	889	932	1109
Honduras	703	1281	1225
Mexico	1186	1485	2345
Nicaragua	--	1490	1380[a]
Panama	--	--	--

NOTES:

[a] 1964 total defense expenditure figures used in the absence of data for 1965.

[b] Beginning in 1959, the functional expenditure category "Defense" used by Costa Rica in reporting to the United Nations *Statistical Yearbook* was changed to "Justice, Police, and Other Security Forces." This change was made with no indication of what expenditures once classified as "Defense" were to be included in this category. Accordingly, assuming the continuance of the 1948 legislative ceiling of 1200 men for the security forces, the author has adopted a ~$2,000 figure for 1960 and 1965 -- approximately the 1958 level (see fn. c to Table 12).

Table 12

OAS PEACE FORCE FOR THE DOMINICAN REPUBLIC, JUNE 1965:
COSTS PER MEMBER OF THE ARMED FORCES FOR
PARTICIPATING COUNTRIES

(Costs shown in 1960 U.S. dollars)

Country	Number of OAS Peace Force Members[a]	1965 Costs Per Member of Armed Forces
Brazil	1,000	1,363[b]
Costa Rica	21	~2,000[c]
El Salvador	3	1,288
Nicaragua	156	1,380[b]
Honduras	249	1,225
Paraguay	183	500[b]
Total number of members and unweighted average cost per member	1,612	1,255

NOTES:

[a] Los Angeles Times, June 27, 1965.

[b] 1964 total defense expenditures were used for the calculation.

[c] This number was approximated because of the change, in 1959, in Costa Rica's functional definition of defense to include "Justice, Police, and Other Security Forces." For 1958, the last year of the strictly "defense" entry, the cost per member of the armed forces was $1,917.

per member have declined since 1960. The countries in this class are Argentina, Honduras, Chile, Peru, the Dominican Republic, Nicaragua, and Venezuela. The decreases in the last five have been considerable -- especially in Venezuela. The third class comprises countries where expenditures per member of the armed forces have increased since 1960. These countries are Brazil, Paraguay, Haiti, Colombia, El Salvador, Guatemala, and Mexico. The increases in the last four have been sizable -- especially in Mexico.

Within the scope of this Memorandum, it is infeasible to try to explain this behavior pattern. There are too many factors about which we know too little for each country: changes in pay rates, changes in pension plans (including numbers and grades of people on the retired list), changes in the extent of use of low-paid conscriptees, changes in the ratio of officers to enlisted men, changes in the rate and character of mechanization and modernization of equipment, and the like. More research is needed. For those who are interested, we suggest two countries for study: Venezuela, where the decrease has been substantial, and Mexico, where the increase has been substantial.

The third thing that strikes one about Table 11, particularly as it relates to Table 2, is the limited correlation between the size of total defense expenditures and expenditures per member of the armed forces. Looking only at the six largest defense spenders, in 1960, one finds the following:

	Rank Order by Size of Total Defense Expenditures	Rank Order by Expenditures Per Member of the Armed Forces
Argentina	1	3
Brazil	2	5
Venezuela	3	1
Chile	4	2
Mexico	5	4
Peru	6	6

Similarily, in 1965:

	Rank Order by Size of Total Defense Expenditures	Rank Order by Expenditures Per Member of the Armed Forces
Argentina	1	5
Brazil[1]	2	6
Venezuela	3	1
Mexico	4	3
Chile	5	4
Colombia	6	2

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[1]In the absence of final defense expenditure data for 1965, 1964 data were used in both columns.

VII.   SOME SUGGESTIONS FOR FUTURE RESEARCH

This section discusses five topics for possible future research
which, if pursued, would fill important gaps in the information base
underlying the development and modification of U.S. policies toward
Latin America.   In addition it makes a suggestion for more timely and
improved reporting of Latin American financial data.

The research topics are as follows:

1. Improving the numerical data on Latin American defense
    expenditures.

2. Improving our understanding of the interaction of Latin
    American domestic conflicts and stresses with Latin
    American defense expenditures.

3. Improving our understanding of border conflicts and
    their effects on defense expenditures.

4. Helping improve cost-benefit decisions on military
    expenditures within Latin American countries, and
    U.S. decisions to supply military and economic aid.

5. Finally, making selected, in-depth country studies.
    Although all twenty countries in Latin America need
    this kind of research attention, some countries merit
    priority in the allocation of scarce research
    resources: Venezuela, Colombia, Mexico, and Chile.

These five topics are commented on below.

IMPROVING THE NUMERICAL DATA ON LATIN AMERICAN
MILITARY EXPENDITURES

The tabular series presented in this Memorandum shou ` be brought,
and kept, up to date.[1]   In addition, the validity of sp   data
translations -- from a current-price to a constant-price basis, and
from a local-currency to a U.S.-dollar basis -- should be checked in
each series.

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[1]Updating would include digging back into the past to enrich
certain series -- in particular, per capita military expenditures
in relation to per capita gross national product.

Further, it would be useful to look at the component items of the single entry in the United Nations Statistical Yearbook: "Defense." This rubric should be broken down, for as many years as possible, into: (1) service components (Army, Navy, Air Force); (2) support components (for example, pay and subsistence, procurement, operation and maintenance) and major mission components (for example, border protection, police functions, air action); (3) sources of expenditure funds (for example, local appropriations, receipts from enterprises managed by the defense establishments); and (4) expenditures differentiated by local currency and foreign exchange.

To acquire these data would mean turning to more primary information than that collected in the Statistical Yearbook, América en Cifras, or the various reports published by the Agency for International Development (AID). For each country analyzed, such primary sources might include columns in major newspapers bearing on budget discussions in the legislative branches of the government, reports and publications of various agencies of both the defense and finance ministries, and unclassified military journals. As noted earlier, some work along these lines is under way at RAND on selected Latin American countries.

IMPROVING THE KNOWLEDGE OF LATIN AMERICAN DOMESTIC CONFLICTS AND STRESSES AND THEIR EFFECTS ON DEFENSE EXPENDITURES

The brief examination here of military expenditures as a function of domestic discord (see Sects. III and IV) underscores the need for more adequate data than those available to this study. Further, it would be interesting to look at factors making for domestic stability (see Appendix B).

It might be advisable, in examining material on domestic stresses, to limit the study to one country at the outset, to permit a more thorough and refined analysis than the one in this Memorandum (see the discussion of Venezuela in Sect. III). If an improved study were made of Venezuela, for example, the analytic devices developed could then profitably be used as models for studying other countries.

IMPROVING THE KNOWLEDGE OF BORDER CONFLICTS
AND THEIR EFFECTS ON DEFENSE EXPENDITURES

An exploratory effort to examine the interaction of border conflicts and defense expenditures has been attempted in Sect. III. Much more can and should be done in this area, not only on improving the social, military, economic, and historical inputs, but also on developing a better method of analysis.

IMPROVING COST-BENEFIT DECISIONS

We have noted earlier the need for more data on such items as defense expenditures by service, by missions or functions, by manpower, procurement, maintenance, and RD&T, and by local money resources vs. scarce foreign exchange.

In connection with these breakdowns, it is important that mission cost studies be undertaken. In some part, the motivation is, of course, the improvement of the various American assistance programs; but, in greater part, it is the possibility of helping these countries to make mission-oriented cost-effectiveness calculations leading to better allocation of resources to accomplish specific ends. It is well known that the intellectual development and administrative adoption of these approaches have had a slow and painful history in the United States. One of the most important contributions this country could make to Latin America would be to pass on our knowledge and experience in these matters. This transfer can best -- and perhaps can only -- be made by sympathetic, enlightened, and persistent joint cooperative work within the countries themselves.

RESEARCH ON SELECTED COUNTRIES: VENEZUELA,
COLOMBIA, MEXICO, CHILE

The defense-expenditure tables presented in this Memorandum highlight the importance of research on the evolution and role of the defense establishment of particular countries -- notably, perhaps, Venezuela. By almost any measure, Venezuela qualifies for attention in a program of research on the role of the military, or of U.S.

economic and military aid, in Latin America. Venezuela has for almost
a decade supplanted Chile as the third-ranked military nation in Latin
America in terms of social defense expenditures; in Venezuela the mili-
tary's share of annual total government expenditures has been uniquely
stable at a low level for close to three decades; Venezuela's defense
expenditures amounted in 1960 to only 2.2 percent of GNP; its per
capita defense expenditures have for two decades exceeded by a sub-
stantial margin those in all other Latin American countries; and its
defense expenditures per member of the armed forces have substantially
exceeded similar expenditures in other Latin American countries. Addi-
tionally, it has figured to a limited extent in U.S. economic and mili-
tary aid programs in Latin America since 1950. For all these reasons,
a comprehensive study would seem to be warranted. To the author's
knowledge, no such analysis of the evolution of the military role in
Venezuela has yet been undertaken.

Equally important would be a study of one of the four countries
where defense expenditures have been unstable over time. Colombia
would seem to be a first choice here, for several reasons: its defense
expenditures have been unstable at a high level; it borders on a coun-
try (Venezuela) where the relationship, by contrast, has been very
stable at a low level; in recent years the Colombian defense estab-
lishment has been laying increasing emphasis on a variety of benign
"civic action" programs [13, September 27, 1965]; and, finally,
Colombia's expenditures have risen to very high levels in recent
years -- so high that they may soon (1966 or 1967) exceed the expendi-
ture levels of Chile.

Another candidate for research in depth would be Mexico, where
in recent years annual defense expenditures have risen rapidly despite
the absence of any internal or external political problems. One is
tempted to hypothesize that this increase in expenditures is the
result of a greatly expanded "civic action" program. If this is the
case, it would be important to see how well the job is being done by
the defense establishment, what alternative institution might handle
some of the functions more ably, and so on.

Finally, it would be interesting to examine Chile's relatively
stable defense expenditures in recent years -- stable despite its
unsettled border problems with other countries (for example, Bolivia,
Argentina, Peru) and despite the general upward trend in defense
expenditures in other major Latin American countries (for example,
Venezuela, Colombia, and Mexico). A central question would seem to
be, has Chile found a way to purchase adequate (from its point of
view) defense power at low cost, and, if so, how has it done it?

These, over-briefly stated, are our research recommendations.
Beyond this point, we have one final suggestion that has more to do
with publication than with research. This is the problem of getting
Latin American financial data on a more timely basis than is now pos-
sible via the United Nations Statistical Yearbook. In view of the
proven ability of the AID Economic Data Book, Latin America to publish
data quickly and on a current basis, we believe it could provide a
considerable service if it would expand its publication to do the
following:

o   For all countries, provide a series of data that are
     consistent in method and sources with that provided
     by the United Nations Statistical Yearbook

o   Where differences in data occur -- because of
     different accounting and statistical methods, or
     different sources -- supply explicit explanations
     of the differences.

If these two suggestions are adopted, it should give the scholar and
policymaker a series consistent with the Statistical Yearbook series
on a timelier basis, as well as the opportunity of using alternative,
and hopefully better, series once they see in context the source and
methodological foundations of the various data.

Finally, we hope that AID will continue its projections of future
trends, but in doing so be more explicit on the manner in which the
projections are made and on the nature and magnitude of the uncer-
tainties in the projections. (See Appendix A.)

Appendix A

SECONDARY SOURCES OF LATIN AMERICAN DEFENSE-EXPENDITURE DATA

UNITED NATIONS STATISTICAL YEARBOOK

In the preparation of this Memorandum, most (perhaps 95 percent) of the defense-expenditure data were obtained from the various annual editions of the United Nations Statistical Yearbook.[1] This useful data collection was first published in 1949, covering data for 1948 but including some data back to 1937 and 1938. Since 1949 it has been published annually, up to and including the current edition (1966).

The Statistical Yearbook is prepared by the Statistical Office of the United Nations with the assistance of the statistical offices of the various Latin American nations. This assistance is supplemented by contributions from specialized agencies of the United Nations and other intergovernmental agencies.

In compiling the data, the editors of the Statistical Yearbook draw heavily on national statistics published in various official documents of the member nations, and on replies by individual countries to questionnaires on national financial statistics. If additional material, or checking of data, is needed, the Statistical Office of the United Nations relies on the appropriate country representatives at the United Nations for assistance.

In each succeeding issue, the editors try to bring the preceding issue up to date and expand the statistical coverage. The data for all countries are progressively being put on a more uniform, more comparable basis. Strong efforts are made to make the data more current and timely. To give one example used in this Memorandum, often the best data a country can provide for a given year is a defense-appropriation figure that has been voted upon and approved by the legislative body; or sometimes the best data amount to only an informed estimate. However, as

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[1] Statistical Office of the United Nations, Department of Economic and Social Affairs, Statistical Yearbook, United Nations Publishing Series, New York.

soon as possible, these provisional figures are replaced in subsequent issues of the Statistical Yearbook by the actual year-end defense-expenditure figures. The reporting and publishing process has consistently been improved. The 1966 edition well demonstrates these qualitative advances.

Because the United Nations Statistical Yearbook provides the most extensive (in time) defense-expenditure data, because it is revised annually, and, above all, because it relies so completely on official financial data published or otherwise submitted by the member nations themselves, it is used as the basic source text for this Memorandum.

AMÉRICA EN CIFRAS

The other source used (5 percent) in preparing this Memorandum was the 1960, 1961, 1963, and 1965 issues of América en Cifras ("America in Figures").[1] This collection is prepared in much the same way as the Statistical Yearbook. The main differences are that it extends back in time only as far as 1956; that it is a biennial publication, and therefore does not have the range or currency of the Statistical Yearbook; and that it is not so prompt or thorough as the Statistical Yearbook in correcting estimated or appropriated defense expenditures into actual year-end defense expenditures. Nevertheless, it carries hard-to-obtain information on some countries (specifically, Uruguay and Paraguay consistently; and Bolivia, most of the time).[2] It was this final difference that accounted for the inclusion of América en Cifras data in the series -- that is, it supplied material for some years on countries where the Statistical Yearbook was blank.

As a general rule, the defense-expenditure entries in the Statistical Yearbook and América en Cifras are exactly the same. This

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[1] Pan American Union (Department of Statistics) and the Interamerican Statistical Institute (General Secretariat), América en Cifras, Washington, D.C.

[2] In this connection, it is interesting -- in the light of past condemnations by Latin American political organizations -- that the Dominican Republic submits data to the Statistical Yearbook but not to América en Cifras.

is to be expected in view of the common primary sources used. In only
two cases were significant differences detected. In Peru, the _América
en Cifras_ figures are substantially different from the _Statistical
Yearbook_ figures for most years.[1] In Honduras, for 1961-1963 the
América en Cifras figures are lower than the _Statistical Yearbook_
figures, and for 1964 they are slightly higher. Why these differences
exist for these two countries, we have so far been unable to learn. For
the sake of consistency, we have used the _Statistical Yearbook_ figures.

AID ECONOMIC DATA BOOK, LATIN AMERICA[2]

This publication goes back to about 1960. It is published in
looseleaf form, with revised insert sheets issued frequently but irreg-
ularly. This aspect of the publication makes, of course, for greater
currency than is possible with the other series. Despite this advantage,
we have not used _AID Economic Data Book, Latin America_ figures. In
comparing the three series for the years 1960-1965 and for countries
for which there were comparable figures, we encountered many unexplained
differences between the _AID Economic Data Book, Latin America_ figures
and those given in the _Statistical Yearbook_ and _América en Cifras_ (which,
as we indicated, tend to be identical). These differences may occur
because (a) the _AID Economic Data Book, Latin America_ uses (in a way not
made explicit) data obtained by AID field representatives from uniden-
tified individuals in the various Latin American countries, and (b) the
AID home office uses estimating processes of a special kind (again, not
made explicit). In this connection, the _AID Economic Data Book, Latin
America_ has a note prominently displayed at the bottom of the title
page which reads as follows:

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[1] In the case of Peru, data for total government expenditures tend
typically to be lower than those in the _Statistical Yearbook_, while the
entries for defense expenditures tend to be the same or occasionally
lower.

[2] U.S. Agency for International Development (Statistics and Reports
Division), _AID Economic Data Book, Latin America_, Washington, D.C.

CAUTIONARY NOTE

Data on less developed countries are subject
to numerous qualifications and in many cases
<u>represent only rough estimates or approximate</u>
<u>orders of magnitude rather than precise statistics</u>
[emphasis added]. The figures should therefore be
used with caution in forming economic judgments
about a particular country, in studying trends, or
in making comparisons about countries.

Although the <u>AID Economic Data Book, Latin America</u> figures differ
in many cases from the figures in the other sources, it is quite possible
that they are, in some or many cases, better. But since the differences
are significant and unexplained, we have elected to stay with a consis-
tent series -- the <u>Statistical Yearbook</u> supplemented occasionally by
<u>América en Cifras</u>. However, recognizing AID's ability to produce more
current data more quickly, we should hope that, as time and funds permit,
that agency will make explicit the basis for data differences, for the
benefit of students and researchers.

INTERAMERICAN STATISTICAL YEARBOOK

A fourth possible source of secondary data on Latin American
defense-expenditures is the <u>Interamerican Statistical Yearbook</u>.[1] This
data collection was initially published in 1940 with high expectations
that it would become an annual publication of Latin American statistics
compiled by Latin Americans, but it was permanently discontinued after
the inaugural edition.

Although for most Latin American countries this collection covered
the years 1938 to 1940, for some countries it included the year 1937
and estimates for the year 1941. Since this source presented attractive
possibilities for filling gaps in the early years for many of the coun-
tries in the United Nations <u>Statistical Yearbook</u>, we examined it care-
fully. In making comparisons, we found some large differences from
the other sources.

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[1]Raul C. Migone (Director) <u>et al.</u>, <u>Interamerican Statistical</u>
<u>Yearbook</u> (New York: Macmillan, 1940).

In part, these differences reflect the normal difficulties and
inaccuracies found in the formative issue of a statistical publication.
In part, they are accounted for by the fact that our preferred source,
the United Nations volume, uses a _functional_ rather than a _ministerial_
approach. Since in most Latin American countries the sum of the expen-
ditures of the Army and Navy ministries does not match total "defense
expenditures," and since there is no way of identifying in the _Inter-
american_ volume how much of what other ministries' figures went for
defense, we decided not to use data that were inconsistently formulated
with respect to the other sources -- and that, incidentally, tended to
have a highly fluctuating downward bias. In part, finally, the differ-
ences are probably due to the employment of unspecified primary sources
different from those used by the United Nations editors.

For these reasons, we elected to exclude from the Memorandum any
data from this source. But there is no intention of discouraging its
use by other students interested in examining Latin American financial
statistics for the important post-World War II period.

INTEGRATING SOURCE DATA

When this study of Latin American defense expenditures was first
begun early in 1964, one of the most troublesome problems was to isolate
actual from estimated expenditures (that is, final year-end reports of
total amounts actually spent as distinguished from funds appropriated,
projections of expenditures, or estimates of future expenditures). As
a general rule, the United Nations _Statistical Yearbook_ was -- and still
is -- careful and explicit in indicating what its defense-expenditure
entries really are. The practice followed is described as follows:

> The letters PR indicate provisional results, the letters
> RE indicate revised estimates, the letter E means _voted_ esti-
> mates, and the letters DE mean draft estimates submitted to
> Parliament. _Otherwise the figures relate to the closed
> accounts_ [emphasis added].[1]

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[1] United Nations _Statistical Yearbook_, 1965, p. 596.

The Statistical Yearbook is consistently careful in making explicit whether entries are closed accounts, PRs, REs, Es, or DEs. The central problem initially (in the present study) was that, for a variety of reasons,[1] there were serious time-lags before closed-account reports (that is, actual year-end expenditures) appeared in a given annual volume -- thus generating the problem of handling mixed series.

Let us illustrate the point with a country that has been accorded a considerable amount of attention in this Memorandum -- Venezuela. The following reporting situation occurred for defense expenditures in the year 1950: estimates[2] of 1950 expenditures did not appear until the 1952 edition of the yearbook, and "closed account" (that is, final) expenditure figures did not appear until the 1954 edition. The 1951 expenditures were first published as an estimate in the 1952 edition; there was no closed-account entry until the 1955 edition. Similarly, 1952 expenditures first appeared as an estimate in the 1952 edition but did not appear as closed-account entry until the 1956 edition. For 1953 expenditures, there was again a four-year lag. And so it goes for other years and other countries. Indeed, in one case the time lag between the appearance of estimated and the appearance of actual defense expenditures was as much as 11 years!

Fortunately, however, the United Nations and its cooperating member nations have made great reporting progress in recent years, so that in recent editions of the Statistical Yearbook the gap is only one year. For example, again in Venezuela, 1965 defense expenditures appeared in the 1965 edition as an estimate, and the closed-account figures appeared in the 1966 edition.

With this improvement in reporting, an initial central data problem has become simple to handle. We derive our series of actual expenditure

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[1] In part, relating to the delayed reporting practices of the member nations themselves; in part, relating to the problems of the United Nations in setting up a statistical office and bringing it to the point of functioning on a quick-reporting, accurate basis; and so on.

[2] Here the term "estimates" is used loosely to stand for PRs, REs, Es, and DEs.

figures from the latest edition of the Statistical Yearbook, and then move back, an annual edition at a time, until complete and consistent series of final expenditures are obtained.

Although this content gap has now been effectively closed, there is still the problem of a timeliness gap -- the period involved in preparing and publishing a document of the proportions of the Statistical Yearbook. For example, the 1966 edition is only now (fall 1967) being circulated. Thus, there is something like a two-year lapse of time between the calculation of final expenditures, in any particular Latin American country, and the availability of the data for scholars and policymakers on Latin America.

The AID E onomic Data Book, Latin America, with its looseleaf format, is not subject to time-lags of this order. Accordingly, it might be helpful if AID, in addition to supplying its own figures (derived in its own way, using its own sources), could provide simultaneously comparable data using United Nations sources and statistical analytic techniques. It might be more helpful still, if, where differences occur, AID would explain them, so that the reader could make more informed judgments on trends, developing problems, emerging policies, and so on. In sum, the aim is to stress the importance of continuity in series, currency in reporting, and explicitness in explaining differences.

One final thought. Typically, the Statistical Yearbook attempts to project figures, at most, only one year into the future (very occasionally two), on the basis of ministerial reports, budget submissions to parliaments, and so on. AID, on the other hand, not infrequently (and less infrequently recently) makes projections several years into the future. Such projections, we believe, serve a useful -- indeed, a necessary -- function in foreign-policy formulation. But, for this purpose, we think it essential that such projections be accompanied by explicit statements of the underlying rationale, including some indication (numerically expressed, if possible) of the uncertainties surrounding the preferred projections.

Appendix B

SOME OBSERVATIONS ON INTERNAL POLITICAL CONFLICTS
IN LATIN AMERICAN COUNTRIES

It is a commonly held view that fluctuations in Latin American defense expenditures and in the relationship of defense expenditures to total governmental expenditures are heavily influenced by internal political conflicts. To get a handle on the actual incidence of significant internal political conflicts, the author made extensive use of the data in Table B-1. This table identifies, year by year, the actual occurrence of unscheduled, illegal change of government (the head of state removed), and offers some pertinent comments on the characteristics of the change. It is a reproduction of the original in the testimony submitted by the Honorable Lincoln Gordon to the U.S. Senate Committee on Foreign Relations on February 7, 1966 [32].[1]

Admittedly, this is a somewhat inexact way of searching out possible relationships between defense-expenditure fluctuations and internal political conflict. For example, it gives no indication of unsuccessful conflicts, of events in anticipation of possible conflicts, and so on. More importantly, it gives no indication of the open terrorism occurring in such countries as Colombia, Venezuela, Guatemala, and to a certain extent Bolivia.

The Gordon table is used here despite its limitations, since only one, lesser alternative was available: the so-called Fitzgibbon Index. Every five years (1945, 1950, 1955, and 1960 -- presumably an Index has been prepared for 1965, though it has not yet been published), Professor Russell Fitzgibbon of the University of California at Los Angeles has surveyed specialists on Latin America for an assessment of the political climate in individual Latin American countries.[2] Apart from the

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[1] A similar table appears in Willard F. Barber and C. Neale Ronning, Internal Security and Military Power (Columbus, Ohio: Ohio State University Press, 1966), Appendix A, Parts I and II, pp. 249-265.

[2] Charles Wolf, Jr., The Political Effects of Military Programs: Some Indications from Latin America, RM-3676-ISA, The RAND Corporation, June 1963, pp. 9-11.

limitations of the Index, discussed in Wolf's study, its main disadvantage for us is that it is produced only at five-year intervals.

In the absence, then, of better measures of Latin American internal political conflicts, we have chosen to use those in Table B-1.

Table B-1

LATIN AMERICA: ILLEGAL AND UNSCHEDULED CHANGES OF HEADS OF STATE, 1930–65

Latin America has a long history of unconstitutional successions. The attached table reviews the record during the 36-year period 1930–65, when there were 106 illegal and unscheduled changes of heads of state, as defined and counted in this review. Mexico was the only country that handled the presidential succession by constitutional means throughout the period. Ecuador had the largest number of unconstitutional changes—11 in all. Dictator rule held change of any sort to a minimum in some countries for long periods. Orderly processes of constitutional succession accounted for the low number of illegal changes in others. Military coups were the immediate cause of most illegal changes in heads of state, but in many cases civilians tacitly supported coups, and in some cases, as noted, were active partners.

The attached table provides a country-by-country review for the 36-year period. Included in the count are unscheduled changes brought about by assassination or suicide, but not those precipitated by death of heads of state from natural causes or accidents. Also omitted are changes of heads of state engineered through elections violating normal standards of representative government.

Latin America: Illegal and unscheduled changes of heads of state, 1930–65, by country

Country	Head of state removed	Date	Comment
Argentina	Hipolito Irigoyen [1]	Sept. 6, 1930	Military coup.
	Ramon S. Castillo [1]	June 4, 1943	Do.
	Gen. Arturo Rawson	June 6, 1943	Reshuffle of military control.
	Gen. Edelmiro J. Farrell	Feb. 24, 1944	Do.
	Juan D. Peron [1]	Sept. 22, 1955	Military coup.
	Gen. Eduardo Lonardi	Nov. 13, 1955	Reshuffle of military control; Gen. Pedro Aramburu became Provisional President.
	Arturo Frondizi [1]	Mar. 29, 1962	Military coup installed Vice President Jose Mario Guido.
Bolivia	Hernando Siles [1]	June 27, 1930	Military coup.
	Daniel Salamanca [1]	Nov. 28, 1934	Military coup installed Vice President Jose Luis Tejada.
	Jose Luis Tejada Sorzano	May 17, 1936	Military coup led to joint civil and military junta under Col. Jose David Toro.
	Col. Jose David Toro	July 14, 1937	Driven from office by fellow army officers; Lt. Gen. German Busch succeeded as President.
	Lt. Gen. German Busch	Aug. 23, 1939	Committed suicide; Gen. Carlos Quintanilla assumed Presidency.
	Gen. Enrique Penaranda	Dec. 20, 1943	Military coup installed Maj. Gualberto Villarroel.
	Maj Gualberto Villarroel	July 21, 1946	Lynched in popular uprising and replaced by civilian junta headed by Tomas Monje Gutierrez.
	Mamerto Urriologoitia [1]	May 15, 1951	President Urriologoitia resigned following elections in which MNR leader Victor Paz Estenssoro won a plurality; military junta under General Ballivian took over.
	Gen. Hugo Ballivian Rojas	Apr. 9, 1952	Overthrown by MNR-led revolution.
	Victor Paz Estenssoro [1]	Nov. 6, 1964	Military coup forced Paz to flee. He was succeeded by his Vice President, Gen. Rene Barrientos Ortuno.
Brazil	Washington Luis Pereira de Souza [1]	Oct. 30, 1930	Forced to resign after revolt in southern provinces; Getulio Vargas became President.
	Getulio Dornellas Vargas	Oct. 29, 1945	Military coup.
	Getulio Dornellas Vargas [1]	Aug. 24, 1954	Committed suicide after forced to resign by military; Vice President Joao Cafe Filho became President.

See footnotes at end of table.

Table B-1 (continued)

Country	Head of state removed	Date	Comment
Brasil—Continued.	Carlos Coimbra da Luz......	Nov. 11, 1955	Senate President Coimbra da Luz assumed office Nov. 5, when Cafe disabled by heart attack; replaced by Senate Vice President Nereu Ramos as Acting President (Nov. 11, 1955-Jan. 31, 1956) until President-elect Juscelino Kubitschek was inaugurated.
	Joao Goulart..................	Apr. 1, 1964	Goulart left country in face of military and civilian uprising. He was succeeded by Chamber President Mazzilli in accordance with constitutional provisions. Congress elected Marshal (retired) Humberto Castello Branco as President on Apr. 9, 1964.
Chile...............	Gen. Carlos Ibanez..........	July —, 1931	Resigned and fled country after mass demonstrations and rioting.
	Juan Montero [1]................	June 4, 1932	Overthrown by military Junta headed by Carlos Davila.
	Col. Marmaduke Grove Eugenio Matte Hurtado.	June 16, 1932	Other 2 members of Junta forced out by Davila and exiled to Easter Island; Davila became Provisional President.
	Carlos Davila................	Sept. 13, 1932	Military coup; Gen. Bartolome Blanche became President.
	Gen. Bartolome Blanche....	Oct. 2, 1932	Forced to yield power to Abraham Oyanedel, Chief Justice of Supreme Court.
Colombia..........	Alfonso Lopez [1]...............	July 19, 1945	Resigned on own initiative; Congress elected Alberto Lleras Camargo.
	Laureano Gomez [1]..........	June 13, 1953	Military coup.
	Gen. Rojas Pinilla...........	May 10, 1957	Resigned under popular pressure combined with a loss of military support.
Costa Rica........	Teodoro Picado Michalski [1]..	Apr. 20, 1948	Forced out after annulling election of Otilio Ulate.
	Leon Herrera................	May 3, 1948	Deposed by Jose Figueres' junta which held office until Ulate's inauguration Jan. 16, 1949.
Cuba...............	Gerardo Machado [1]...........	Aug. 12, 1933	Military coup.
	Carlos Manuel de Cespedes..	Sept. 5, 1933	Driven from office by "sergeants' revolt" led by Fulgencio Batista who became dictator but not President.
	Ramon Grau San Martin....	Jan. 15, 1934	Removed by Batista.
	Carlos Hevia................	Jan. 17, 1934	Do.
	Miguel Mariano Gomez [1]....	Dec. 23, 1936	Do.
	Carlos Prio Socarras [1].......	Mar. 10, 1952	Overthrown by Batista-led military coup.
	Gen. Fulgencio Batista......	Jan. 1, 1959	Overthrown by Fidel Castro's 26th of July movement.
	Dr. Manuel Urrutia Lleo....	July 17, 1959	Removed by Castro.
Dominican Republic.	Horacio Vasquez [1]......	Feb. 23, 1930	Overthrown by Trujillo.
	Jaoquin Balaguer [1]...........	Jan. 16, 1962	Following assassination of Dictator Rafael Trujillo, May 30, 1961, and expulsion of Trujillo family, Dec. 29, 1961, military seized control from Balaguer, Chief of Council of State and elected President under Trujillo; Balaguer simultaneously resigned.
	Maj. Gen. Pedro Rafael Rodriguez Echavarria.	Jan. 18, 1962	Council of State regained control under Dr. Rafael Filiberto Bonnelly at the end of January 1962 and governed until Juan Bosch inaugurated on Feb. 27, 1963.
	Juan Bosch [1]..................	Sept. 25, 1963	Military coup.
	Donald Reid Cabral.........	Apr. 24, 1965	Military revolt overthrew ruling junta, succeeded by interregnum until Provisional Government, headed by García-Godoy, installed on Sept. 3, 1965.
Ecuador..........	Isidro Ayora................	Aug. 25, 1931	Military coup.
	Col. Luis Larrea Alba.......	Oct. 15, 1931	Do.
	Baquerizo Moreno...........	Aug. 27, 1932	Do.
	Jose Maria Velasco Ibarra [1].	Aug. 20, 1935	Do.
	Antonio Pons................	Sept. 26, 1935	Do.
	Federico Paez...............	Oct. 22, 1937	Do.
	Carlos Arroyo del Rio [1]......	May 29, 1944	Resigned in face of military opposition.
	Joe Maria Velasco Ibarra....	Aug. 23, 1947	Military coup led by Defense Minister Mancheno.
	Colonel Mancheno...........	Sept. 2, 1947	Military-civilian resistance.

See footnotes at end of table.

Table B-1 (continued)

Country	Head of state removed	Date	Comment
Ecuador—Con.	Jose Maria Velasco Ibarra [1]	Nov. 7, 1961	Resigned in favor of Vice President Carlos Julio Arosemana Monroy under pressure of mass demonstrations—given free reign by the military.
	Carlos Julio Arosemena Monroy.	July 11, 1963	Military coup.
El Salvador	Arturo Araujo	Dec. 2, 1931	Do.
	Gen. Maximilian Hernandez Martinez.	May 9, 1944	Resigned following student and military uprising.
	Salvador Casteneda Castro	Dec. 14, 1948	Deposed by military when he sought a constitutional change to permit a second term.
	Col. Manuel de Cordoba	Jan. 6, 1949	Ousted by military led by Maj. Oscar Osorio, who was later elected President.
	Jose Maria Lemus [1]	Oct. 26, 1960	Military coup with university support.
	Col. Miguel Castillo (junta) [1]	Jan. 25, 1961	Military coup ousted junta.
Guatemala	Baudilio Palma [1]	Dec. 16, 1930	Overthrown by Gen. Manuel Orellana 2 days after taking office to replace ailing President ..acon.
	Gen Manuel Orellana	Dec. 31, 1930	Resigned after failing to get U.S. recognition.
	Gen. Jorge Ubico	July 1, 1944	Resigned under pressure of civilian protest movement; military junta took control.
	Gen. Federico Ponce	Oct. 20, 1944	Ousted by junior army officers and students.
	Jacobo Arbenz Guzman [1]	June 27, 1954	Resigned when army refused to support Government against Castillo Armas-led invasion.
	Carlos Castillo Armas [1]	July 26, 1957	Killed by a palace guard; succeeded by First Vice President Luis Arturo Gonzalo Lopes.
	Luis Arturo Gonzalo Lopes	Oct. 24, 1957	Deposed by military junta; Second Vice President Guillermo Flores Avendano elected provisional President by Congress 2 days later and governed until Gen. Miguel Ydigoras Fuentes assumed office Mar. 15, 1958.
	Miguel Ydigoras Fuentes [1]	Mar. 30, 1963	Overthrown by Defense Minister Col. Enrique Peralta Azurdia.
Haiti	Elie Lescot [1]	Jan. 11, 1946	Military coup.
	Dumarsais Estime	May 10, 1950	Do.
	Gen. Paul Eugene Magloire [1]	Dec. 12, 1956	Resigned after attempting to prolong mandate.
	Chief Justice Pierre-Louis	Feb. 4, 1957	Forced out by politically inspired general strike.
	Franck Sylvain	Apr. 2, 1957	Forced out by politically inspired strike; army in control.
	Executive Council	May 21, 1957	Dissolved by army.
	Pierre Daniel Fignole	June 14, 1957	Ousted by military junta which held control until Duvalier elected Oct. 22, 1957; Duvalier's constitutional term expired on May 15, 1963.
Honduras	Juan Manuel Galvez [1]	Dec. 6, 1954	Vice President Julio Lozano took control after nullification of October 1954 elections.
	Julio Lozano	Oct. 21, 1956	Military forced Lozano out and held elections which brought Dr. Jose Ramon Villeda Morales to power.
	Ramon Villeda Morales [1]	Oct. 3, 1963	Overthrown by the military.
Mexico	(2)		
Nicaragua	Juan Bautista Sacasa [1]	June 2, 1936	Deposed by National Guard led by Gen. Anastasio Somoza.
	Leonardo Arguello Vargas [1]	May 26, 1947	Deposed by Congress on Somoza's orders.
	Anastasio Somoza	Sept. 26, 1956	Following Somoza's assassination his son succeeded to Presidency by virtue of being President of Congress; then named provisional President by Congress to complete father's term.
Panama	Florencio Harmodio Arosemena [1]	Jan. 2, 1931	Ousted in an uprising and term completed by Ricardo J. Alfaro.
	Arnulfo Arias [1]	Oct. 9, 1941	Left country without securing legal permission; his absence was declared unauthorized; succeeded by Ricardo de la Guardia.
	Daniel Chanis	Nov. 20, 1949	Overthrown by Police Chief Lt. Col. Jose Antonio Remon; replaced by Arnulfo Arias.

See footnotes at end of table.

Table B-1 (continued)

Country	Head of state removed	Date	Comment
Panama—Con.	Arnulfo Arias	May 10, 1951	Arias resigned; First Vice President Alcibiades Arosemena elevated to Presidency.
	Jose Antonio Remon [1]	Jan. 2, 1955	Murder of Remon brought First Vice President Jose Guizado to Presidency later ousted by impeachment and imprisoned for complicity in the murder.
Paraguay	Eusebio Ayala [1]	Feb. 17, 1936	Military coup.
	Rafael Franco	Aug. 15, 1937	Do.
	Gen. Higinio Morinigo [1]	June 3, 1948	Military coup with Colorado Party support.
	J. Natalicio Gonzales [1]	Jan. 30, 1949	Military coup.
	Gen. Raimundo Rolon	Feb. 26, 1949	Military coup with Colorado support.
	Felipe Molas Lopez [1]	Sept. 10, 1949	Resigned when Colorado Party withdrew support.
	Frederico Chaves [1]	May 5, 1954	Military coup.
Peru	Augusto Leguia	Aug. 25, 1930	Resigned following revolt led by Col. Luis Sanchez Cerro.
	Col. Luis Sanchez Cerro	Feb.-Mar. 1931.	Forced by series of revolts to give way to David Samanez Ocampo.
	Luis Sanchez Cerro [1]	Apr. 30, 1933	Elected president in October 1931 and assassinated in 1933; succeeded by Marshal Benavides.
	Jose Luis Bustamante [1]	Oct. 27, 1948	Overthrown by Gen. Manuel A. Odria.
	Manuel Prado [1]	June 18, 1962	Deposed by coup establishing military junta.
Uruguay	National Council of Administration.[1]	Mar. 31, 1933	Gabriel Terra (1930-38) effected a bloodless coup in which he abolished bifurcated executive and established himself as dictator.
Venezuela	Isaias Medina Angarita [1]	Oct. 18, 1945	Unseated by revolt on eve of elections and replaced by 7-man junta with Romulo Betancourt as provisional President.
	Romulo Gallegos [1]	Nov. 24, 1948	Overthrown by military.
	Lt. Col. Carlos Delgado Chalbaud.	Nov. 13, 1950	Following assassination of Junta President Delgado Chalbaud, Dr. German Suarez Flamerich became head of the Junta.
	German Suarez Flamerich	Dec. 2, 1952	With military support, Perez Jimenez forced the resignation of Suarez Flamerich and secured his own appointment as provisional President, pending new elections in 1953.
	Marco Perez Jimenez [1]	Jan. 23, 1958	Overthrown by military with popular backing.

[1] Elected.
[2] No illegal or unscheduled changes.

Appendix C

SOME OBSERVATIONS ON THE INCIDENCE OF BORDER CONFLICTS
AMONG LATIN AMERICAN COUNTRIES

Tables C-1 and C-2 were prepared for use in examining possible correlations between defense expenditures and border conflicts among countries in Latin America.

By and large, during the period under examination in this study (1938 to 1965) there were surprisingly few border conflicts resulting in armed hostilities. Of these few, only two seem to have been of any great intensity or duration. First, there were repeated incidents between Ecuador and Peru involving border-demarcation disagreements[1] -- intensified by the fact that Ecuador has never really become reconciled to the loss of parts of its former Amazonian territory in the nineteenth century. Second, there were incidents involving Guatemala and Honduras and British Honduras, partly reflecting Guatemala's desire to extend its borders into these two countries -- particularly the latter.

In the relative absence of hostilities in the period under consideration, it is reasonable to believe that there nevertheless may exist "hangover effects" from military conflicts of the nineteenth century. The principal countries affected are:

Paraguay. In the bloody war of 1864-1870, Paraguay lost heavily in manpower and territory to Argentina and Brazil; it may be presumed to be edgy about territorial designs these countries may still harbor. This feeling may be complicated by the fact that Paraguay is landlocked: its only access to the sea is the River Plata, which is essentially controlled by Argentina.

Bolivia. In its historic war with Chile, Bolivia lost heavily in land and as a result is virtually landlocked. At the present, the lifeline of Bolivia is the railroad running from La Paz across the Andes

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[1] In one of these incidents (1941), Peru destroyed the Ecuadorian army and occupied approximately one-third of the country.

Table C-1

BORDER CONFLICTS AMONG SOUTH AMERICAN COUNTRIES, BY YEAR OF OCCURRENCE

Country & Opponent	Prior to 1938	1938 to 1964
1. Argentina		
Bolivia	1868, 1889, 1925	1964
Brazil	1889	
Chile	1889	1960, 1964
Paraguay	1856, 1865, 1876	
Uruguay	1889	
2. Bolivia		
Argentina	1868, 1889, 1925	
Brazil	1867, 1903	
Chile	1895, 1904	
Paraguay	1879, 1887, 1932-35	1938
Peru	1826, 1831, 1847, 1886, 1902	
3. Brazil		
Argentina	1889	
Bolivia	1867, 1903	
Colombia	1907, 1928	
Ecuador	1904	
Paraguay	1872	
Peru	1851, 1874, 1904, 1909	
Uruguay	1851, 1857, 1909	
Venezuela	1852, 1859, 1905, 1928	
4. Chile		
Argentina	1898	1960, 1964
Bolivia	1895, 1904	
Peru	1929	
5. Colombia		
Brazil	1907, 1928	
Ecuador	1916	
Peru	1922	
Venezuela	1811, 1833, 1845, 1896, 1898, 1916	1941
Costa Rica	1880	
6. Ecuador		
Brazil	1904	
Colombia	1916	
Peru	1869, 1887, 1890	1940, 1941, 1942, 1956, 1960
7. Paraguay		
Argentina	1856, 1865, 1876	
Bolivia	1879, 1887, 1932-35	1938
Brazil	1872	

Table C-1 (continued)

Country & Opponent	Prior to 1938	1938 to 1964
8. Peru		
Bolivia	1826, 1831, 1847, 1886, 1902	
Brazil	1851, 1874, 1904, 1909	
Chile	1929	
Colombia	1922	
Ecuador	1869, 1887, 1890	1940, 1941, 1942, 1956, 1960
9. Uruguay		
Argentina	1889	
Brazil	1851, 1857, 1909	
10. Venezuela		
Brazil	1852, 1859, 1905, 1928	
Colombia	1811, 1833, 1845, 1896, 1898, 1916	1941

SOURCE:

The principal source for these data is A. Curtis Wilgus and Raul D'Eca, Latin American History (New York: Barnes and Noble, 1964), pp. 391-399.

Table C-2

BORDER CONFLICTS AMONG CENTRAL AMERICAN COUNTRIES,
BY YEAR OF OCCURRENCE

Country & Opponent	Prior to 1938	1938 to 1964
1. Costa Rica		
Colombia	1880	
Nicaragua	1886, 1896	
Panama	1918	1964
2. El Salvador		
Honduras	1880, 1886, 1895	
3. Guatemala		
Mexico	1892	
Honduras	1895	1964
British Honduras		1964
4. Honduras		
El Salvador	1880, 1886, 1895	
Nicaragua	1894, 1904	1964
Guatemala	1895	1964
5. Mexico		
Guatemala	1892	
6. Nicaragua		
Costa Rica	1886, 1896	
Honduras	1894, 1904	1964
7. Panama		
Costa Rica	1910	1964

SOURCE:

The principal source for these data is A. Curtis Wilgus and
Raul D'Eca, Latin American History (New York: Barnes and Noble,
1964), pp. 391-399.

to Arica, where the Bolivians have a free port. Given the precarious
nature of the free port and the access to it, Bolivia's ill feelings at
its historic military losses to Chile may be intensified by feelings of
insecurity over the viability of its existing arrangements for access
to the sea. It is possible, furthermore, that Bolivia is insecure with
respect to Paraguay, to whom it lost sizable amounts of territory in
the Chaco War of 1932-1935.

Peru. Like Bolivia, Peru was a loser of territory in the war with
Chile (1879-1883) and may still fear the emergence some day of a
predatory, radically governed Chile.

Chile. Although Chile and Argentina have not fought a war since
1898 (except the minor, short-lived conflict in 1960), the long border
between Chile and Argentina has never been carefully delineated. The
area of Patagonia is still a locus of unsettled questions of sover-
eignty and possession, possibly an irritant to historic fears and
antipathies. In addition, there are the problems of Chile's northern
borders with Peru, and its fear of possible hostile action by Peru or
Bolivia over Arica.

Argentina. For Argentina there are the potential disputes with
Chile mentioned above. In addition, two problems appear to have been
building up in the minds of Argentineans in recent years. First, there
is fear of Brazil, which is continuing to be supplied economically and
militarily by the United States. Second, there is a growing concern
over a possible threat by Chile, if that country should someday acquire
a radical government that could take aggressive military action over
historic border uncertainties.

Appendix D

ESTIMATES OF MEMBERS OF THE ARMED FORCES FOR SELECTED YEARS: 1955, 1960, 1965

In trying to estimate defense expenditures per member of the armed forces in Latin American countries, it quickly became apparent that little is confidently known about the size of the armed forces (not to mention the internal distribution of the membership among the various services) in the various countries. It is true that numbers are frequently bandied about, quoted, and requoted; but most of them have the common characteristic of being either based on uncited sources or cited from sources of low reliability.

Accordingly, an attempt has been made here to pull together for three selected years (1955, 1960, 1965) the most commonly cited estimates, with annotations as to their limitations and reliability. An attempt has also been made to derive (for purposes of the study) a "best estimate" for the three selected years. Although even these "best estimates" probably have wide (and, worse still, unknown) margins of error,[1] they at least have the advantage that their sources and derivations are made explicit.

For the convenience of the reader, significant alternatives to the author's preferred estimates are supplied -- even in the case of estimates that the author has rejected because of unknown source and derivation.

Table D-1 summarizes the "best estimates" of armed-forces numerical strength for 1955, 1960, and 1965. The entries in this table are the figures used in computing the defense expenditures per member of the armed forces in Sect. VI of this Memorandum.

Tables D-2, D-3, and D-4 summarize various estimates for the years 1955, 1960, and 1965, respectively. Attached to each table is a set of brief discussions of the sources and derivations of particular figures in the table.

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[1]Except in the case of Costa Rica, where since 1948 an explicit ceiling (1200) on the size of its security forces has been established and enforced.

Table D-1

MANPOWER ESTIMATES USED IN CALCULATING MILITARY EXPENDITURES
PER MEMBER OF THE ARMED FORCES[a]

Country	1955	1960	1965
South America			
Argentina	147,500	130,800	132,000
Bolivia	17,000	15,000	15,000
Brazil	107,200	222,000	200,000
Chile	41,500	41,000	46,000
Colombia	11,700	23,000	40,000
Ecuador	19,800	18,000	18,000
Paraguay	6,200	11,200	11,000
Peru	17,500	50,000	70,000
Uruguay	6,450	6,700	14,000
Venezuela	17,240	23,000	35,000
Central America			
Costa Rica	1,200	1,200	1,200
Cuba	23,400	--	--
Dominican Republic	8,500	18,000	19,300
El Salvador	6,900	6,800	6,600
Guatemala	8,400	8,400	8,000
Haiti	4,950	5,900	5,500
Honduras	3,700	3,700	4,000
Mexico	47,800	55,000	60,000
Nicaragua	11,300	4,500	5,000
Panama	--	3,400	3,500

NOTE:

[a]See Tables D-2, D-3, and D-4 immediately following.

Table D-2

ESTIMATES OF MEMBERS OF ARMED FORCES: 1955

Country	U.S. Senate Estimates	Coward Estimates	Loftus Estimates
	(1)[a]	(2)	(3)
South America			
Argentina	147,500	147,500	147,500
Bolivia	17,000	12,000	17,000
Brazil	107,200	107,200	107,200
Chile	41,500	41,500	41,500
Colombia	11,700	11,700	11,700
Ecuador	3,100	19,800	19,800
Paraguay	6,200	6,200	6,200
Peru	17,500	17,500	17,500
Uruguay	6,450	6,450	6,450
Venezuela	17,240	17,000	17,240
Central America			
Costa Rica	1,200	1,200	1,200
Cuba	23,400	13,400	23,400
Dominican Republic	8,500	8,500	8,500
El Salvador	6,900	6,900	6,900
Guatemala	21,400	--	8,400
Haiti	4,953	4,950	4,950
Honduras	3,700	3,700	3,700
Mexico	47,800	47,800	47,800
Nicaragua	11,300	--	11,300
Panama	--	--	--

NOTE:

[a]See attached set of notes.

NOTES ON SOURCES AND DERIVATION OF TABLE D-2

1. U.S. Senate Committee on Foreign Relations, Subcommittee on Dis-
    armament, Control and Reduction of Armaments: Disarmament and
    Security in Latin America, 85th Congress, 1st Session, Staff Study
    No. 7, Government Printing Office, Washington, D.C., 1957. There
    is a note to the source table which reads as follows: "Unless
    otherwise noted, from Aviation Studies (Int'l), Ltd., Air Force
    and Naval Air Statistical Record, London. As amended to April
    10, 1956."

2. H. Roberts Coward, Military Technology in Developing Countries
    (Cambridge, Mass : M.I.T. Press, 1964), Appendix II, various
    pages.

3. Since in most cases the U.S. Senate and the Coward figures are iden-
    tical (probably because the latter were chiefly obtained from the
    former) and since no alternative series were available for check-
    ing, all common numbers were accepted without adjustment. Where
    numbers differed, the following decisions were made:
    a. Bolivia. The Coward figures are primarily from the U.S.
        Senate source. The 12,000 figure is believed to be a tran-
        scription error; the Coward entries for 1956 and 1957 are
        17,000. The U.S. Senate source estimates 15,000 for the Army
        alone.

    b. Cuba. The Coward figure is assumed to be a transcription
        error. The U.S. Senate source estimates 19,000 men for the
        Army alone.

    c. Ecuador. The U.S. Senate estimate was rejected because it is
        for the Air Forces only. The Coward figure was accepted
        because it closely approximates a total manpower figure arrived
        at by calculating the average ratios of Air Force to total
        military manpower for typical Latin American countries during
        1955.

    d. Guatemala. The U.S. Senate figure is believed to be much too
        high in relationship to the size of the armed forces of

surrounding countries of similar size in Central America in
1955. Although Coward supplies no estimate for 1955, he
gives an estimate of 8400 annually for the years 1956 through
1961 inclusive.

e. <u>Haiti</u>. The difference here is trivial. Coward rounded the
U.S. Senate figure downward.

f. <u>Venezuela</u>. Again, the difference is trivial. The U.S.
Senate figure is accepted.

4. Given the dubious sources of the Senate estimates and the fact
that the Coward estimates are based heavily upon them, both sets
of estimates should be used with caution.

Table D-3

ESTIMATES OF MEMBERS OF ARMED FORCES: 1960

Country	Barber & Ronning (1)	Coward (2)	Loftus Approximation 1 Estimate (3)	Loftus Approximation 2 Estimate (4)	Loftus Final Approximation (5)
South America					
Argentina	130,000	130,800	124,000[a]	116,900 (1958)	130,800
Bolivia	15,000	12,000	15,000[b]	11,010 (1960)	15,000
Brazil	222,000	241,000	221,980[c]	263,000 (1960)	222,000
Chile	42,000	41,000	67,100[d]	44,500 (1959)	41,000
Colombia	37,000	17,900	58,800[e]	22,900 (1962)	23,000
Ecuador	10,700	17,800	19,800[f]	11,180 (1962)	18,000
Paraguay	10,500	11,200	11,440[g]	9,100 (1962)	11,200
Peru	73,000	42,300	50,140[h]	41,000 (1961)	50,000
Uruguay	14,000	6,720	8,250[i]	13,110 (1963)	6,700
Venezuela	35,000	22,900	33,200[j]	22,240 (1961)	23,000
Central America					
Costa Rica	1,200	1,200	1,200[k]	1,230 (1960)	1,200
Cuba	--	--	--	--	--
Dominican Republic	18,500	18,000	25,000[l]	17,600 (1960)	18,000
El Salvador	6,600	6,800	6,900[m]	6,650 (1960)	6,800
Guatemala	7,900	8,400	10,000[l]	8,000 (1955)	8,400
Haiti	5,500	5,850	5,680[b]	5,680 (1963)	5,900
Honduras	3,700	3,700	3,200[n]	4,200 (1963)	3,700
Mexico	60,600	50,200	64,592[o]	52,850 (1962)	55,000
Nicaragua	4,900	4,500	6,113[p]	4,100 (1962)	4,500
Panama	3,400	3,400	3,370[b]	3,424	3,400

NOTE:

[a]See attached set of notes.

NOTES ON SOURCES AND DERIVATION OF TABLE D-3

1. Willard F. Barber and C. Neale Ronning, Internal Security and
   Military Power (Columbus, Ohio: Ohio State University Press,
   1966), Table IV, pp. 226-227. The data in this source are for
   1963.

2. H. Roberts Coward, Military Technology in Developing Countries
   (Cambridge, Mass.: M.I.T. Press, 1964), Appendix II, various pages.

3. Column 3 (Approximation 1):

   The figures in this table were derived generally from the 1960 and
   1961 editions of the Statesman's Yearbook. The footnotes that
   follow indicate the manipulations made on data from particular
   issues of the Statesman's Yearbook, and from other sources, in
   deriving the estimates shown.

   (a) Statesman's Yearbook, adjusted to assume no further growth in
       the Navy or Air Force since 1955.

   (b) Statesman's Yearbook.

   (c) Statesman's Yearbook. adjusted to equate Army growth with the
       growth of the Navy and Air Force.

   (d) Statesman's Yearbook, adjusted to equate Navy and Air Force
       growth rates.

   (e) Statesman's Yearbook, adjusted to reflect private conversa-
       tions on Army growth, and to equate Air Force and Navy growth.

   (f) Statesman's Yearbook, from Navy figures, adjusted to reflect
       equal growth rates for Air Force and Navy.

   (g) Statesman's Yearbook, from Army figures, adjusted to reflect
       equal growth rates for Air Force and Navy.

   (h) Statesman's Yearbook, from Army and Navy figures, assuming
       that the Air Force grows like the Navy.

   (i) Statesman's Yearbook, from Navy figures, assuming that the
       Army and Air Force grow at equal rates.

(j) Statesman's Yearbook, from Navy and Army figures, assuming that the Air Force grows like the Navy.

(k) Edwin Lieuwen, Arms and Politics in Latin America (New York: Praeger, 1961), pp. 96-97; and William S. Stokes, Latin American Politics (New York: Crowell, 1959), pp. 121-122.

(l) World Almanac.

(m) Statesman's Yearbook, average of given ranges.

(n) Statesman's Yearbook, from Army figures, assuming no Air Force.

(o) Statesman's Yearbook, adjusted for Army growth at only half the rate of the Air Force and Navy.

(p) Statesman's Yearbook, assuming that the Air Force decreases at the same rate as the Army, and no Navy.

4. Column 4 (Approximation 2):

As indicated in source note (1) to Table D-2, the U.S. Senate Committee on Foreign Relations estimate of 1955 was derived "unless otherwise noted, from Aviation Studies (Int'l), Ltd. Air Force and Naval Air Statistical Record, London. As amended to April 10, 1956." In deriving Column 4, we have taken the figures from the latest of these statistical records. The original estimates, however, are for different years and are so noted in this column.

5. Column 5 (Final Approximation):

(a) All figures are rounded.

(b) Since the Coward estimates seemed best by several standards (for example, congruity with growth trends of the armed forces in particular countries, compatibility with growth trends in military expenditures in particular countries, and reasonable compatibility with the author's independently derived calculations), they were used -- but with some minor rounding -- in all cases except for Bolivia, Brazil, Colombia, Ecuador, and Mexico. In these five cases the Coward figures seemed too far out of line from the final approximations for 1955

and 1965. With these criteria in mind, final figures close
to the Loftus first-approximation estimates were used in the
case of Brazil, Ecuador, and Peru; and figures close to the
Loftus second-approximation estimates were used in the case
of Colombia and Mexico.

Table D-4

ESTIMATES OF MEMBERS OF ARMED FORCES: 1965

Country	Barber & Ronning (1)a	Ewing & Sellers (2)	Adelphi (3)	Coward A (4)	Coward B (5)	Loftus Approximation 1 (6)	Loftus Final Approximation (7)
South America							
Argentina	130,000	118,000	132,000	154,575	133,965	134,112	132,000
Bolivia	15,000	12,500	15,000	15,419	15,608	15,897	15,000
Brazil	222,000	222,000	194,350	229,040	233,948	260,163	200,000
Chile	42,000	45,500	60,000	47,542	43,793	45,748	46,000
Colombia	37,000	47,800	63,000	26,386	38,710	37,708	40,000
Ecuador	10,700	14,900	19,000	21,058	11,277	17,286	18,000
Paraguay	10,500	10,500	20,200	10,579	10,874	12,018	11,000
Peru	73,000	(45,030)	54,650	45,140	76,006	71,648	70,000
Uruguay	14,000	14,000	17,000	8,752	14,410	8,145	14,000
Venezuela	35,000	30,000	30,500	26,956	37,066	43,610	35,000
Central America							
Costa Rica	1,200	3,000	(1,200)	1,530	1,273	1,200	1,200
Cuba	--	52,000	121,000	45,496	102,122	--	--
Dominican Republic	18,500	18,500	19,300	19,114	20,205	20,266	19,300
El Salvador	6,600	6,600	5,630	8,590	7,231	6,737	6,600
Guatemala	7,900	8,000	9,000	9,918	8,526	7,988	8,000
Haiti	5,500	5,500	5,500	5,952	5,720	5,219	5,500
Honduras	3,700	3,700	4,725	4,473	4,026	3,928	4,000
Mexico	60,500	62,200	68,500	62,370	65,610	59,733	60,000
Nicaragua	4,900	1,900	7,100	5,363	5,363	4,639	5,000
Panama	3,400	3,500	3,425	3,881	3,695	3,364	3,500
Total, Latin America (excluding Cuba)	701,500	673,130	730,000	706,638	737,306	759,409	694,100

NOTE:

aSee attached set of notes.

NOTES ON SOURCES AND DERIVATION OF TABLE D-4:

1. Willard F. Barber and C. Neale Ronning, <u>Internal Security and Military Power</u> (Columbus, Ohio: Ohio State University Press, 1966), Table IV, pp. 226-227. The data in this source are for 1963.

2. Laurence L. Ewing and Robert C. Sellers (eds.), <u>The Reference Handbook of the Armed Forces of the World, 1966 Edition</u>, Robert C. Sellers & Associates, Universal Building North, Washington, D.C., 1966, various pages. The figure for Peru was estimated by the author, since the source document contains no total figure and no figure for personnel in the Air Force. The estimate was made by postulating that, for the larger Latin American countries (using the Ewing and Sellers numbers), the army and navy together constitute 82.5 percent of the total members of the armed forces. The figure for Panama was estimated by the author, since the source document contained no estimate.

3. David Wood, <u>Armed Forces in Central and South America</u>, Adelphi Papers, Number Thirty-four (April 1967), The Institute for Strategic Studies, London WC. 2, 1967, various pages. The figure for Costa Rica was estimated by the author, since the source document contained no estimate.

4. H. Roberts Coward, <u>Military Technology in Developing Countries</u> (Cambridge, Mass.: 1964), Appendix II. The estimates in column (A) were made by applying to the 1965 population projections for the various countries (as contained in appropriate pages of Coward's Appendix II) the historic (taken generally from the past nine years) average annual percentage of the population in the armed forces in each country (also from Appendix II).

5. Coward, <u>op. cit</u>. The estimates in column (B) were made by applying to the 1965 population projections for the various countries (as contained in the appropriate pages of Coward's Appendix II) the most recent (taken generally from 1963) percentages of the population in the armed forces in each country that year (also from Appendix II).

6. Generally derived by fitting crude curves to the annual average per-
   centage of members in the armed forces, referred to total population
   (as contained in Coward, Appendix II), for the past four years in
   each country, and applying the derived trend percentage to the latest
   United Nations population data. This was done in all cases except
   Uruguay and Venezuela, where the percentage figure was so high in
   1962-1963 relative to historic trends that even the most sophisti-
   cated curve-fitting could yield only dubious results. In the case
   of Uruguay, where the historical percentage ran about 2.4, the
   figure jumped to 4.4 percent in 1962 and to 4.7 percent in 1963.
   In the face of Uruguay's difficult inflationary situation, we
   impressionistically stipulated a 3 percent figure for 1965 and
   applied it to the 1965 United Nations population estimates. In
   the case of Venezuela, the curve from 1959 to 1961 was almost a
   straight line sloped downward (from 3.2 to 3.0 percent), but in
   1962 it jumped to 3.8 percent and in 1963 to 4.3 percent. Given
   Venezuela's concern with internal insurgency and related matters,
   we impressionistically stipulated a figure of 5 percent for 1965.

7. The figures in the final column represent an attempt to reconcile
   the various estimates. In making the reconciliation, the following
   guides were used:

   (a) Unless the figures in column (6) disagreed radically with the
       figures in column (3), the column (3) figures were accepted
       as stated or with relatively minor adjustment.[1] It is believed
       that, in view of the data access of the Institute for Strategic
       Studies (ISS), their estimates for some countries (specifically,
       Argentina, Bolivia, Brazil, Ecuador, the Dominican Republic,
       Guatemala, Haiti, and Panama) are generally as good as can be
       obtained.

   (b) In seven cases where the author's first approximation differed
       radically from the ISS estimates (Chile, Colombia, Paraguay,

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[1] For example, in the case of Panama, the Adelphi figure was rounded
slightly upward; and in the case of Brazil the upward rounding was on
the order of 5650 men.

Uruguay, El Salvador, Honduras, and Nicaragua), final-
approximation figures were selected that were reasonably
consistent with growth trends in the country and with the
other estimates. In the latter process, most weight was
attached to the Coward B estimates, the Coward A estimates,
the Barber and Ronning estimates, and finally the Ewing and
Sellers estimates, in that order.

(c) In the case of Peru, where the estimates vary widely, a
slightly downward rounding off of the author's first approxi-
mation was selected, because it seemed most consistent with
growth trends in the country, with impressions formed by the
author's colleagues who have visited the country, and with
fragments of information in the public press.

(d) In the case of Mexico, where variations in the estimates are
not great, a rounding off of the author's first approximation
was selected, because it seemed most consistent with growth
trends in Mexico and with impressions formed from information
in the public press and conversations with people having
recent knowledge of the country.

(e) In the case of Venezuela, where the author's first approxima-
tion greatly exceeds the other estimates, the U.S. Army esti-
mate of 33,000 for the year 1963 was chosen and increased
impressionistically to 35,000.[1]

(f) All figures were rounded. Given the uncertainties in our
knowledge of Latin American manpower data, precise figures
are meaningless.

(g) One final comment. In looking for some official (or semi-
official) unclassified check on the numbers in this column,
the best the author could find was an article, in 1965, by

[1] Foreign Area Studies Division of the Special Operations Research
Office of the American University, U.S. Army Area Handbook for Venezuela
(Washington, D.C., Government Printing Office, 1964), p. 535.

Maurice J. Mountain in the <u>Marine Corps Gazette</u>.[1] In the
journal editors' preface, Dr. Mountain is identified as
Deputy Director, Western Hemisphere Regional Office, Office
of the Assistant Secretary of Defense, International Security
Affairs. The editors add that, with the Directorate of
Military Assistance, "he participates in the development of
country and regional military assistance programs in the
Latin American area; he also monitors country program
performance." Against these credentials, it is worth noting
that in the body of his article he states: "In the 19 Latin
American countries (other than Cuba) a <u>combined military
force of some 700,000 men</u> [emphasis added] serve an aggregate
population of about 221 million."

If this is a good benchmark figure, then the total for
the final approximations in column (7) seems comfortingly
close. The Barber and Ronning estimates are closer still.
Nonetheless, the reader is free -- indeed encouraged -- to
select any of the columns (or combinations thereof) from
which to derive alternative estimates of defense expenditures
per member of the armed forces.

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[1]Maurice J. Mountain, "The United States and Latin America: A
Political and Military Appraisal," <u>Marine Corps Gazette</u>, September
1965, pp. 19-20.

Ap endix E

SOME SENSITIVITY TESTS

As indicated in the Introduction, two factors play a decisive role in the conversion of local currencies at current prices into constant 1960 U.S. dollars. The first is the exchange rate used, and the second is the price index by which current local prices are converted into constant local prices. The numerical results are so sensitive to these factors that some use should be made of sensitivity tests.

After considerable experimentation, it was decided not to present sensitivity tests of alternative foreign exchange rates. Selection of tests depends on a variety of factors about which we have little or no data in any year: what equipment purchases are made where by what countries, what terms of payment are agreed upon (for example, time periods for payment, exchange-rate fluctuation, provisions, etc.), and so on. Without such data one could run literally thousands of sensitivity tests with no more useful result than the generalization already well-known -- namely, that the results are sensitive to the foreign exchange rates employed. Where policy decisions must be made, or where, for whatever reason, more precise figures are needed for levels of defense expenditures in any given country or set of countries, an effort should be made to broaden the data base and make appropriate adjustments as to the defense-expenditure numbers.

With respect to deflating local currencies at current prices into constant local prices, we assumed (for lack of an alternative) that all expenditures were made within the country in question itself. This left us with the problem of what price index to use as the deflator.

In the United Nations Statistical Yearbook, three price indexes are available: a wholesale price index (which we shall refer to as WPI); a consumers' price index representing an "ensemble" or mixture of consumer items like food, clothing, and housing (CPI); and a consumers' price index representing food only (FPI).[1]

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[1] In the United Nations Statistical Yearbook, what we have chosen to term WPI is referred to as the WI index; what we have chosen to

Ideally, one would prefer to use the WPI index series on the reasonably safe assumption that, to a large extent, defense establishments buy at wholesale prices. However, in the case of Latin American economic data, we decided not to use this index, for two reasons: first, four countries have never developed a WPI series; and, second, five countries did not initiate WPI series until some years after 1938, the beginning date of our study, and several terminated this series prior to 1965, the ending date. (See Table E-1.)

The next-best alternative index, CPI, was rejected because Venezuela (which figures importantly in our analysis as a whole) did not begin its series until 1945; its FPI series, however, began in 1938. In addition, Nicaragua did not begin its CPI series until 1956, but it had an FPI series going in 1938 (Table E-1).

Another possible alternative was the method employed by Charles Wolf, Jr. of The RAND Corporation in two Latin American studies [35] [36]. Essentially, for each country studied he worked back from the latest year that a WPI series was available; when that series expired, he shifted to the CPI series as a deflator; and in the very few cases where that series expired, he used the FPI series. (If no WPI series was available, he used the CPI series as far back as possible, then -- if and when necessary -- the FPI.) For example, in computing Argentinian defense expenditures, he used the WPI back through 1956, then shifted to the CPI series. This method we may refer to as the WPI-CPI-FPI method.

Ingenious and explicit as this formula is, it nevertheless incurs some risk of distortion by reason of shifting from one index to another in a given country study,[1] and by using a form of consumers' index for countries where no WPI series had existed.

Since the risk of distortion tends to increase as one goes back in time from 1950 to 1938, we decided -- reluctantly -- to use the FPI,

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to term CPI is referred to as the CA index; and what we have chosen to term FPI is referred to as the CB index.

[1]Though this risk was small in Wolf's studies because most of the countries with WPI series kept them back to 1950, the beginning time point of the work -- see Table E-1.

Table E-1

DATE RANGES OF WPI, CPI, AND FPI SERIES

Country	WPI	CPI	FPI
South America			
Argentina	1956-1965	1938-1965	1938-1965
Bolivia	None	1938-1965	1938-1965
Brazil	1938-1964	1939-1964	1939-1964
Chile	1938-1965	1938-1965	1938-1965
Colombia	1947-1965	1938-1965	1938-1965
Ecuador	1952-1965	1950-1965	1950-1965
Paraguay	1938-1963	1938-1965	1938-1965
Peru	1938-1962	1938-1965	1938-1965
Uruguay	None	1938-1965	1938-1965
Venezuela	1938-1965	1945-1965	1938-1965
Central America			
Costa Rica	1938-1965	1938-1965	1938-1965
Dominican Republic	1941-1965	1941-1965	1941-1965
El Salvador	1955-1965	1938-1965	1938-1965
Guatemala	1946-1965	1946-1965	1946-1965
Haiti	None	1948-1965	1948-1965
Honduras	None	1938-1965	1938-1965
Mexico	1938-1965	1938-1965	1938-1965
Nicaragua	None	1956-1965	1938-1965

or food-only consumers' price index series throughout, but to provide the reader with sensitivity tables in which he could see at a glance how a different deflator would have affected the final numerical outcome.

A final consideration in choosing the FPI series was that we were interested in establishing outer bounds to our estimates of defense expenditures. Since using the FPI series generally (but not always) results in a higher estimate of defense expenditures in constant 1960 U.S. dollars, the FPI series incidentally satisfied this self-imposed requirement.

Table E-2 summarizes and makes explicit the variations resulting from using the FPI, the CPI, and the WPI-CPI-FPI deflators for total defense expenditures in the selected Latin American countries. Although most of the main points are self-evident, a few should be spelled out. These are as follows:

o   The use of the FPI as a deflator, as expected and
    intended, typically gives values higher than does the
    CPI or the WPI-CPI-FPI, and, of course, higher than
    does the WPI alone (had it been isolated).

o   Between 1940 and 1951, the FPI values exceed CPI values
    by 10 to 15 percent; but after 1951, the difference
    drops to about 5 percent.

o   Between 1940 and 1951, the FPI values exceed the
    WPI-CPI-FPI values by about 10 to 15 percent. There-
    after, the FPI ranges about 8 to 15 percent higher,
    until toward the end of the 1950s when the two series
    come closer and closer together.

Table E-3 summarizes and makes explicit the variations resulting from using the FPI, the CPI, and the WPI-CPI-FPI deflators for defense expenditures in six South American countries. Some points to be emphasized are as follows:

o   With few exceptions (for example, 1961), the use of
    FPI results in a higher defense-expenditure estimate.

o   Using FPI in preference to CPI or WPI-CPI-FPI enlarges
    defense-expenditure estimates by 5 to 10 percent (but
    nearer the latter figure) until 1951. At that point

Table E-2

SUMMARY OF DEFENSE EXPENDITURES FOR SELECTED LATIN AMERICAN
COUNTRIES, 1938-1965, USING DIFFERENT PRICE DEFLATORS[a]

(Millions of 1960 U.S. dollars)

Year	FPI	CPI	WPI-CPI-FPI
1938	-	--	--
1939	--	--	--
1940	523.3	--	478.1
1941	528.1	--	453.4
1942	692.7	--	565.7
1943	914.9	--	750.4
1944	1063.1	--	794.1
1945	1065.4	909.6	865.3
1946	1011.5	841.6	797.3
1947	858.2	759.9	765.3
1948	991.6	896.7	897.5
1949	921.6	836.5	824.9
1950	845.5	750.0	722.9
1951	897.8	799.1	737.7
1952	--	--	--
1953	927.2	878.9	855.7
1954	890.7	839.7	807.0
1955	952.6	904.0	869.6
1956	1126.9	1072.7	1037.4
1957	1086.4	1050.3	1014.6
1958	1201.6	1151.7	1128.8
1959	1029.6	1018.3	979.5
1960	1025.4	1025.4	1025.4
1961	1007.0	998.3	1017.9
1962	1067.4	1064.0	1078.8
1963	1097.0	1093.6	1078.1
1964	1122.4	1151.7	1111.4
1965	--	--	--

NOTE:

[a]Selected countries: Argentina, Brazil, Chile, Colombia,
Peru, Venezuela; Costa Rica, El Salvador, Honduras, Mexico.

Table E-3

SUMMARY OF DEFENSE EXPENDITURES FOR SELECTED SOUTH AMERICAN
COUNTRIES, 1938-1965, USING DIFFERENT PRICE DEFLATORS[a]

(Millions of 1960 U.S. dollars)

Year	FPI	CPI	WPI-CPI-FPI
1938	--	--	449.0
1939	--	--	--
1940	440.9	--	413.0
1941	446.3	--	390.6
1942	607.6	--	498.7
1943	829.1	--	680.0
1944	992.2	--	731.2
1945	992.8	836.8	803.4
1946	949.6	778.0	737.9
1947	796.4	697.5	703.2
1948	925.2	829.4	832.1
1949	854.2	768.5	760.4
1950	778.3	683.8	660.8
1951	829.7	730.2	678.5
1952	--	--	--
1953	853.3	803.8	786.3
1954	828.8	777.6	750.4
1955	884.9	835.2	807.4
1956	1050.8	994.7	966.3
1957	997.3	959.3	930.1
1958	1115.1	1062.4	1041.2
1959	940.2	927.0	888.8
1960	927.7	927.7	927.7
1961	900.2	891.2	910.9
1962	947.2	944.5	959.0
1963	967.0	964.1	949.5
1964	979.8	1010.5	972.3
1965	--	--	--

NOTE:

[a]Selected countries: Argentina, Brazil, Chile,
Colombia, Peru, Venezuela.

the upward bias over CPI becomes trivial until 1964, when
CPI actually yields a higher total defense-expenditure
figure. From 1951 onward, the upward bias of FPI over
WPI-CPI-FPI is constantly decreasing.

Table E-4 does for Central America what Table E-3 does for South
America. The more important points are as follows:

o Except for a few striking differences in the earlier
   years, FPI exceeds CPI by about 5 percent or less.

o Except for a few isolated years, CPI exceeds WPI-CPI-FPI
   by about 5 percent until 1957; after this time the
   differences are negligible.

o Except for a few striking differences, FPI generally
   exceeds WPI-CPI-FPI by less than 5 percent.

Tables E-5 (which, since it uses the FPI deflator, is an integral
part of most of the computations in this Memorandum), E-6, E-7, and
E-8 exhibit the year-by-year, country-by-country effects of using each
of the four price-index series discussed here as deflators for ten
Latin American countries. Mainly these are supplied for the reader
who wishes to explore the sensitivities in detail. For his convenience
at this point, a few observations are made below on those countries
that account for the largest defense expenditures.

1. ARGENTINA: From 1938 to 1957, using FPI instead of CPI
    raises estimated defense outlays by 10 to 15 percent;
    after 1957, the differences tend to be less than +5
    percent. This relationship holds also for using FPI
    instead of WPI-CPI-FPI.

2. BRAZIL: Until the early 1950s, using FPI rather than
    CPI increases defense-expenditure estimates by 10 to
    15 percent; after the late 1950s, the excess drops to
    less than 5 percent. If FPI is used instead of WPI-
    CPI-FPI, the upward bias of the FPI estimates ranges
    from 10 to 25 percent until 1959; thereafter, the
    positive difference drops to less than 5 percent.

3. CHILE: From 1938 to 1961, there is little to choose
    between FPI and CPI; from 1962 to 1965, using CPI

Table E-4

SUMMARY OF DEFENSE EXPENDITURES FOR SELECTED CENTRAL AMERICAN COUNTRIES, 1938-1965, USING DIFFERENT PRICE DEFLATORS[a]

(Millions of 1960 U.S. dollars)

Year	FPI	CPI	WPI-CPI-FPI
1938	--	--	--
1939	62.9	63.6	53.2
1940	82.4	78.1	65.1
1941	81.8	82.9	62.8
1942	85.1	82.2	67.0
1943	85.8	80.6	70.4
1944	70.9	70.5	62.9
1945	72.6	72.8	61.9
1946	61.9	63.6	59.4
1947	61.8	62.4	62.1
1948	65.4	67.3	65.4
1949	6 .4	68.0	64.5
1950	6. 2	66.2	62.1
1951	6 1	68.9	59.2
1952	65	6 .5	63.3
1953	73.	.1	69.4
1954	61.9	2.1	56.6
1955	67.7	68.8	62.2
1956	76.1	78.0	71.1
1957	89.1	91.0	84.5
1958	86.5	89.3	87.6
1959	89.4	91.3	90.7
1960	97.7	97.7	97.7
1961	106.8	107.1	107.0
1962	120.2	119.5	119.8
1963	130.0	129.5	128.6
1964	142.6	141.2	139.1
1965	160.0	159.6	158.5

NOTE:

[a]Countries selected: Costa Rica, El Salvador, Honduras, Mexico.

Table E-5

DEFENSE EXPENDITURES FOR SELECTED SAMPLE OF LATIN AMERICAN COUNTRIES, 1938-1965, USING THE FPI SERIES AS A DEFLATOR

(Millions of 1960 U.S. dollars)

Year	South America						Central America			
	Argentina	Brazil	Chile	Colombia	Peru	Venezuela	Costa Rica	El Salvador	Honduras	Mexico
1938	145.6	--	63.3	14.2	21.8	25.0	1.4	5.2	--	47.5
1939	--	239.5	63.3	15.4	24.4	22.1	1.7	4.9	2.4	53.9
1940	128.6	189.8	63.3	14.8	19.7	24.7	2.1	5.4	2.5	72.4
1941	141.6	176.5	51.1	14.9	38.8	23.4	2.1	4.4	2.5	72.8
1942	178.4	282.9	58.4	15.0	52.5	20.4	2.4	4.3	2.2	76.2
1943	243.0	428.4	87.7	12.5	39.5	18.0	2.4	3.7	2.0	77.7
1944	432.0	421.7	65.0	13.2	44.6	15.7	2.7	2.6	1.7	63.9
1945	466.8	368.1	85.0	14.3	40.5	18.1	2.2	2.4	2.5	65.5
1946	497.9	286.5	90.0	14.7	37.6	22.9	1.8	3.0	2.6	54.5
1947	403.8	224.3	83.6	20.7	34.4	29.6	1.9	3.7	3.3	52.9
1948	573.8	202.3	67.4	21.8	24.9	35.0	4.0	3.7	4.9	53.8
1949	424.4	257.9	70.0	25.9	32.8	43.2	1.8	4.0	3.7	57.9
1950	323.4	257.7	79.9	23.6	35.5	58.2	1.5	4.6	2.9	58.2
1951	328.8	297.4	75.0	29.2	40.1	59.2	1.9	4.7	2.9	58.6
1952	273.1	246.6	--	42.1	38.1	65.2	2.0	5.9	3.3	54.5
1953	304.3	254.0	135.5	55.0	36.6	67.9	2.0	6.1	2.9	62.9
1954	342.3	244.4	79.8	62.7	33.7	65.9	2.1	6.3	2.8	50.7
1955	274.1	282.4	123.4	63.8	35.9	105.3	2.2	6.2	2.6	56.7
1956	346.8	332.2	118.3	62.8	59.1	131.6	2.2	6.5	4.2	63.2
1957	270.2	394.3	118.7	53.6	53.8	106.7	2.5	7.7	4.2	74.7
1958	293.5	413.4	124.1	48.9	61.0	174.2	2.3	7.2	4.6	72.4
1959	245.0	309.3	99.7	42.2	52.3	191.7	5.7	6.0	4.3	73.4
1960	284.9	267.3	103.5	47.3	50.1	174.6	5.8	6.1	4.1	81.7
1961	291.2	252.0	102.9	54.6	51.9	147.6	5.7	6.1	7.0	88.0
1962	279.4	262.5	106.2	90.7	51.9	156.5	5.9	8.5	7.0	98.8
1963	274.4	267.9	88.1	94.2	59.4	183.0	5.8	8.2	7.1	108.9
1964	290.6	272.6	83.8	85.8	56.8	190.2	5.3	7.4	4.7	125.2
1965	279.0	--	98.6	97.5	--	206.9	5.9	8.5	4.9	140.7

Table E-6

DEFENSE EXPENDITURES FOR SELECTED SAMPLE OF LATIN AMERICAN COUNTRIES, 1938-1965,
USING THE WPI-CPI-FPI SERIES AS A DEFLATOR

(Millions of 1960 U.S. dollars)

Year	South America						Central America			
	Argentina	Brazil	Chile	Colombia	Peru	Venezuela	Costa Rica	El Salvador	Honduras	Mexico
1938	117.6	213.0	54.3	13.2	30.0	20.9	1.2	5.1	--	40.0
1939	--	174.2	54.3	15.1	30.7	19.2	1.4	4.5	2.0	45.3
1940	103.9	195.5	54.3	13.7	24.3	21.3	1.6	4.7	2.1	56.7
1941	114.4	152.4	44.3	13.8	47.2	18.5	1.6	4.1	2.0	55.1
1942	147.6	215.0	50.6	14.0	55.5	16.0	1.8	4.0	1.8	59.4
1943	201.1	334.9	76.0	11.8	41.9	14.3	1.8	3.4	1.8	63.4
1944	357.6	254.0	56.1	13.2	50.3	13.8	2.1	2.7	1.6	56.5
1945	396.1	249.2	73.4	14.9	53.2	16.6	1.7	2.6	2.5	55.1
1946	361.0	214.8	77.7	14.8	46.5	23.1	1.5	3.1	2.5	52.3
1947	348.7	185.7	72.0	20.9	48.3	27.6	1.5	3.8	3.3	53.5
1948	506.3	174.9	58.0	22.2	37.1	33.6	3.3	4.0	4.9	53.2
1949	379.4	198.8	73.9	26.3	39.4	42.6	1.5	4.3	3.6	55.1
1950	268.3	186.3	79.9	26.6	42.2	57.5	1.2	5.2	3.2	52.5
1951	281.5	186.8	73.7	33.4	45.1	58.0	1.6	5.4	3.3	48.9
1952	247.8	209.9	--	45.7	42.9	64.6	1.8	6.6	3.7	51.2
1953	270.1	220.3	126.3	61.5	44.8	63.3	1.9	6.9	3.4	57.2
1954	291.7	194.9	90.2	74.1	39.3	60.2	2.1	6.6	3.3	44.6
1955	231.4	235.1	131.3	73.4	40.8	95.4	2.1	5.6	3.1	51.4
1956	290.0	293.3	120.0	69.9	61.5	131.6	2.1	6.2	4.6	58.2
1957	245.2	343.0	118.9	57.7	58.6	106.7	2.4	7.7	4.5	69.9
1958	277.6	360.3	106.9	52.1	68.5	175.8	2.4	7.1	5.0	73.1
1959	231.3	280.8	91.2	42.1	55.5	187.9	5.8	6.2	4.6	74.1
1960	284.9	267.3	103.5	47.3	50.1	174.6	5.8	6.1	4.1	81.7
1961	294.7	245.6	112.5	57.2	56.0	144.9	5.5	6.3	7.1	88.1
1962	278.4	263.6	125.8	90.5	58.4	142.3	5.9	9.0	7.0	97.9
1963	260.5	258.4	101.4	103.5	60.4	165.3	5.8	8.6	7.3	106.9
1964	277.8	269.3	96.5	100.9	58.5	169.3	5.7	7.6	4.9	120.9
1965	275.4	--	118.3	103.4	--	185.1	6.3	8.8	5.0	138.4

Table E-7

DEFENSE EXPENDITURES FOR SELECTED SAMPLE OF LATIN AMERICAN COUNTRIES, 1938-1965,
USING THE WPI SERIES AS A DEFLATOR

(Millions of 1960 U.S. dollars)

Year	South America						Central America			
	Argentina	Brazil	Chile	Colombia	Peru	Venezuela	Costa Rica	El Salvador	Honduras	Mexico
1938	--	213.0	54.3	--	30.0	20.9	1.2	--	--	40.0
1939	--	174.2	54.3	--	30.7	19.2	1.4	--	--	45.3
1940	--	195.5	54.3	--	24.3	21.3	1.6	--	--	56.7
1941	--	152.4	44.3	--	47.2	18.5	1.6	--	--	55.1
1942	--	215.0	50.6	--	55.5	16.0	1.8	--	--	59.4
1943	--	334.9	76.0	--	41.9	14.3	1.8	--	--	63.4
1944	--	254.0	56.1	--	50.3	13.8	2.1	--	--	56.5
1945	--	249.2	73.4	--	53.2	16.6	1.7	--	--	55.1
1946	--	214.8	77.7	--	46.5	23.1	1.5	--	--	52.3
1947	--	185.7	72.0	--	48.3	27.6	1.5	--	--	53.5
1948	--	174.9	58.0	--	37.1	33.6	3.3	--	--	53.2
1949	--	198.8	73.9	22.2	39.4	42.6	1.5	--	--	55.1
1950	--	186.3	79.9	26.3	42.2	57.5	1.2	--	--	52.5
1951	--	186.8	73.7	26.6	45.1	58.0	1.6	--	--	48.9
1952	--	209.9	--	33.4	42.9	64.6	1.8	--	--	51.2
1953	--	220.3	126.3	45.7	44.8	63.3	1.9	--	--	57.2
1954	--	194.9	90.2	61.5	39.3	60.2	2.1	--	--	44.6
1955	--	235.1	131.3	74.1	40.8	95.4	2.1	5.6	--	51.4
1956	290.0	293.3	120.0	73.4	61.5	131.6	2.1	6.2	--	58.2
1957	245.2	343.0	118.9	69.9	58.6	106.7	2.4	7.7	--	69.9
1958	277.6	360.3	106.9	52.1	68.5	175.8	2.4	7.1	--	73.1
1959	231.3	280.8	91.2	42.1	55.5	187.9	5.8	6.2	--	74.1
1960	284.9	267.3	103.5	47.3	50.1	174.6	5.8	6.1	--	81.7
1961	294.7	245.6	112.5	57.2	56.0	144.9	5.5	6.3	--	88.1
1962	278.4	263.6	125.8	90.5	58.4	142.3	5.9	9.0	--	97.9
1963	260.5	258.4	101.4	103.5	--	165.3	5.8	8.6	--	106.9
1964	277.8	269.3	96.5	100.9	--	169.3	5.7	7.6	--	120.9
1965	275.4	--	8.3	103.4	--	185.1	6.3	8.8	--	138.4

Table E-8

DEFENSE EXPENDITURES FOR SELECTED SAMPLE OF LATIN AMERICAN COUNTRIES, 1938-1965, USING THE CPI SERIES AS A DEFLATOR

(Millions of 1960 U.S. dollars)

Year	South America						Central America			
	Argentina	Brazil	Chile	Colombia	Peru	Venezuela	Costa Rica	El Salvador	Honduras	Mexico
1938	117.6	--	63.3	13.2	17.4	--	1.5	5.1	--	48.9
1939	--	179.6	63.3	15.1	17.8	--	1.7	4.5	2.0	55.4
1940	103.9	169.8	63.3	13.7	14.6	--	2.0	4.7	2.1	69.3
1941	114.4	155.9	51.1	13.8	29.9	--	1.9	4.1	2.0	74.9
1942	147.6	250.0	58.4	14.0	41.1	--	2.4	4.0	1.8	74.0
1943	201.1	375.9	87.7	11.8	31.4	--	2.4	3.4	1.8	73.0
1944	357.6	319.3	65.0	13.2	36.3	--	2.8	2.7	1.6	63.4
1945	396.1	286.8	85.0	14.9	33.5	20.5	2.4	2.6	2.5	65.3
1946	361.0	256.9	90.0	14.8	29.1	26.2	2.0	3.1	2.5	56.0
1947	348.7	182.7	80.4	20.9	28.8	36.0	2.1	3.8	3.3	53.2
1948	506.3	172.3	65.3	21.2	21.5	42.8	4.3	4.0	4.9	54.1
1949	379.4	220.2	68.2	24.6	28.5	47.6	1.8	4.3	3.6	58.3
1950	268.3	219.4	78.1	23.2	31.3	63.5	1.4	5.2	3.2	56.4
1951	281.5	246.2	73.7	29.3	36.2	63.5	1.9	5.4	3.3	58.3
1952	247.8	238.8	--	40.8	35.0	70.5	2.0	6.6	3.7	55.2
1953	270.1	241.7	132.3	54.4	34.2	71.1	2.0	6.9	3.4	62.8
1954	291.7	235.3	84.7	64.1	32.2	69.6	2.2	6.6	3.3	50.0
1955	231.4	268.4	126.3	63.4	34.3	111.4	2.2	6.6	3.1	56.9
1956	292.6	323.8	120.9	61.7	56.5	139.2	2.2	7.0	4.6	64.2
1957	247.0	359.1	129.8	54.9	50.9	117.6	2.5	8.0	4.5	76.0
1958	279.1	367.6	121.0	50.8	57.7	186.2	2.4	7.5	5.0	74.4
1959	253.7	288.8	96.4	42.2	50.8	195.1	5.7	6.2	4.6	74.8
1960	284.9	267.3	103.5	47.3	50.1	174.6	5.8	6.1	4.1	81.7
1961	280.4	245.1	105.2	56.2	52.4	151.9	5.6	6.3	7.1	88.1
1962	269.8	264.6	111.6	88.8	51.9	157.8	5.7	8.9	7.0	97.9
1963	262.6	259.8	95.9	97.1	60.4	188.3	5.6	8.6	7.3	108.0
1964	288.8	276.8	94.2	94.6	58.5	197.6	5.3	7.9	4.9	123.1
1965	276.0	--	111.5	101.6	--	219.1	5.8	9.0	5.0	139.8

increases the difference upward by about 10 percent.
Using FPI in preference to WPI-CPI-FPI yields a
negative difference of about 10 percent for nearly
the entire period.

4. COLOMBIA: In comparing the use of FPI and CPI as
    deflators during the entire period, the positive
    differences amount to 5 percent or less, except in
    the early years, when the differences amount to
    about 8 percent.

5. MEXICO: In using FPI rather than CPI, the figures
    for the entire period are lowered by less than 5 per-
    cent. However, in using FPI in preference to WPI-
    CPI-FPI, the situation is more uneven and complex:
    from 1938 to 1945, the differences tend to be greater
    than +10 percent; for the period 1946 to 1949, the
    differences are +5 percent or less; for the period
    1950 to 1957, the differences range from +5 percent
    or somewhat more to as high as +10 percent; there-
    after they decline to less than +5 percent.

6. VENEZUELA: Until the mid-1950s, the use of FPI
    rather than CPI lowers the figures by more than 5
    percent and as high as 20 percent. After the mid-
    1950s, the differences are generally less than 5
    percent, except for 1957, when the use of CPI enlarges
    defense-expenditure estimates by about 10 percent.
    In using FPI instead of WPI-CPI-FPI, the positive
    differences range from somewhat more than 5 percent
    to as high as 20 percent for several years till the
    early 1950s. Beginning around 1950, this difference
    tends to be less than +5 percent except for 1954 and
    1955, when FPI is about 10 percent higher, and the
    period 1962-1965, when FPI generates a much higher
    estimate.

Appendix F

SOME TESTS OF THE CREDIBILITY OF LATIN AMERICAN DEFENSE-EXPENDITURE ESTIMATES IN 1960 DOLLARS

In looking at the measurements of Latin American defense expenditures in 1960 dollars that appear in this Memorandum, one naturally raises the question, how credible are they? What, if any, independent checks are available? Unfortunately, almost nothing really satisfactory is available.

One interesting reference-point is the following quotation from Milton Eisenhower's book, The Wine Is Bitter:

> Addressing a joint session of the Chilean Congress, [this was in the spring of 1960], President Eisenhowser strongly supported a move initiated by President Alessandri for a reduction of arms expenditures by Latin American nations (then totalling $1.5 billion a year) [7, p. 242; emphasis added].

In the context, it is not clear whether the $1.5 billion-a-year figure was President Alessandri's estimate, or President Eisenhower's, or Dr. Milton Eisenhower's. But from a dim recollection of limited other sources, it would appear to have originated with President Alessandri. Given the fact that the speech dates from the spring of 1960, the expenditures figure probably refers to 1958 or 1959 expense expenditures. The estimates in this Memorandum total $1.37 billion for 1958 and $1.22 billion for 1959.[1] In view of the uncertainties involved, the estimates for at least these two years have a comforting correspondence with the Alessandri figures.

Another possible credibility check is to compare the measurements in this Memorandum with those obtained by Coward [5]. Such a test is of dubious value because both studies employed the same secondary source material (the United Nations Statistical Yearbook), translating

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[1]After making rough estimates for Cuba and Panama, for which no United Nations Statistical Yearbook or América en Cifras data were available for those years.

these data into constant dollars by different methods (see Sect. I of this Memorandum). The comparison is complicated, furthermore, by the fact that Coward's data for 1959 do not include figures for Paraguay, Uruguay, or the Dominican Republic (or, like this Memorandum, for Cuba or Panama). Nevertheless, using Coward's 1959 series and adding in his 1958 estimate for Paraguay, his 1960 estimate for Uruguay, and his 1958 figure for the Dominican Republic -- and adding to all of this the same estimates for Cuba and Panama used in this Memorandum -- one reconstructs the Coward 1959 total for all Latin America to yield a figure of $1.05 billion. That his total is lower than the others mentioned is largely because of his occasional use of "projected" figures rather than "actual" ones (as we shall show subsequently, projected figures frequently run lower than final calculations of actual expenditures) and his method of converting local currencies at local prices into constant U.S. prices.

A third credibility check is to compare the expenditure estimates in this Memorandum with the testimony of Gen. Robert J. Wood, U.S. Army, Director of Military Assistance, before a House of Representatives subcommittee in 1964.[1] He was asked by the Chairman, Congressman Otto E. Passman, "Could you provide for the record an estimate of what each of these 18 Latin American countries is allocating out of its own budget [emphasis added] for its military programs?" He replied by submitting a table entitled "Defense Expenditures for Latin American countries (for calendar year 1963 except as noted) -- dollars in millions." Estimated expenditures from this source are compared with the author's estimates in the following table (no data are shown for Cuba or Haiti -- omitted by Wood -- or for Panama or Uruguay -- for which no 1963 data are available in the author's sources):

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[1]U.S. House of Representatives, Subcommittee of the Committee on Appropriations, Foreign Operations Appropriations for 1965, 88th Congress, 2nd Session, Government Printing Office, Washington, D.C., 1964, Part 1, p. 515.

	Defense Expenditures: 196 (millions of dollars)	
	Wood Estimates	Loftus Estimates
Argentina	342.0	274.4
Bolivia	8.5	6.0
Brazil	565.0	267.9
Chile	109.0	88.1
Colombia	62.0	94.2
Ecuador	19.5	17.4
Paraguay	11.4	5.3
Peru	97.0	·59.4
Venezuela	140.0	183.0
Costa Rica	3.5	3.4
Dominican Republic	33.0	30.8
El Salvador	9.2	8.2
Guatemala	11.0	9.3
Honduras	4.0	7.1
Mexico	119.0	108.9
Nicaragua	8.0	7.1
Total	1542.1	1170.5

No indication is given as to how Gen. Wood's figures were derived.
They tend to differ from data prepared by the U.S. Agency for Inter-
national Development.[1] Specifically, for the countries for which
common data are available, one obtains the following figures:

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[1]AID Economic Data Book, Latin America. See the discussion of
sources in Appendix A.

	Defense Expenditures: 1963 (millions of dollars)	
	Wood Estimates	AID Estimates
Argentina	342.0	299.0
Bolivia	8.5	8.2
Ecuador	19.5	17.0
Paraguay	11.4	10.7
Peru	97.0	86.0
Venezuela	140.0	151.0
Costa Rica	3.5	1.3
Dominican Republic	33.0	34.0
El Salvador	9.2	9.1
Guatemala	11.0	9.3
Honduras	4.0	6.1
Mexico	119.0	110.0
Nicaragua	8.0	7.9
Panama	1.3	0.5
Total	807.4	750.1

General Wood's total is about 7.5 percent higher than the AID
total. The discrepancy is probably even larger, because Congressman
Passman's question was put in terms of what the countries spend for
defense out of their own budgets, while AID calculations are generally
given without regard to the source of the funds.

Even though no explanation is given of how the numbers were
derived, Gen. Wood's high estimate for Brazilian defense expenditures
provides a clue. The only conceivable way that such a large figure
could have been obtained would be that the "coffee" exchange rate was
used instead of the free-market rate. No matter what date is chosen
for an exchange rate, use of the "coffee" rate at least doubles the
apparent level of expenditures in dollars. It is possible that data
differences, in certain cases, are due to the use of varying (but not
explicitly stated) foreign exchange rates, and to varying handling of
the inflationary problems between 1960 and 1963.

In all but four cases (Colombia, Venezuela, Costa Rica, and
Honduras), Gen. Wood's estimates are significantly higher than the
estimates in this Memorandum. Interestingly enough, his estimates
are below those of AID for Venezuela and Honduras (and, trivially,
for the Dominican Republic). Why this is so is anything but evident.[1]

On this check of the credibility of the data, then, one must con-
clude that it is a quite inadequate and unrevealing test of the validity
of the defense-expenditure estimates in this Memorandum. Indeed, one
might go so far as to say that, if any test is involved, the estimates
in this Memorandum raise some questions as to the credibility of
Gen. Wood's estimates.

A fourth possible credibility check would consist of a detailed
comparison of AID estimates for the period 1961-1965. For reasons that
are discussed in detail in Appendix A, the AID test is not considered
to be very meaningful, because of differences in data sources, in
handling inflation phenomena, in exchange ratios, and the like. Never-
theless, a comparison of the AID and the author's defense-expenditure
estimates for 1963 is made here, partly because it is typical of the
other years, but largely because it is pertinent to the Gen. Wood/Loftus
check described above. For those countries for which common estimates
by AID and the author are available in U.S. dollars, the following
comparison results:

	Defense Expenditures: 1963 (millions of dollars)	
	AID Estimates[a]	Loftus Estimates
Argentina	299.0	274.4
Bolivia	8.2	6.0
Ecuador	17.0	17.4
Paraguay	10.7	5.3
Peru	86.0	59.4
Venezuela	151.0	183.0

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[1] AID consistently avoids presenting financial data in U.S. dollars
for Brazil, Chile, and Colombia, because of its recognition of the
difficulties of handling analytically the inflationary problems in
expenditures measurements for those countries.

	Defense Expenditures: 1963 (millions of dollars)	
	AID Estimates[a]	Loftus Estimates
Costa Rica	1.3	3.4
Dominican Republic	34.0	30.8
El Salvador	9.1	8.2
Guatemala	9.3	9.3
Honduras	6.1	7.1
Mexico	110.0	108.9
Nicaragua	7.9	7.1
Total	749.6	720.3

[a]As noted, AID consistently resists attempting to convert Brazilian, Chilean, and Colombian local currencies into U.S. dollars.

Looking only at the total figures, we see that the difference is surprisingly small considering the fact that the author's figures are in 1960 dollars and the AID figures (as far as can be determined) are in 1963 dollars. Looking, however, at individual countries, we notice some puzzling differences. First, there are three cases where the defense-expenditure estimates of this Memorandum are significantly higher than the AID estimates: namely, Venezuela, Costa Rica, and Honduras. Second, there are two cases where the AID estimates are significantly -- and unexplainably -- higher than the estimates of this Memorandum: namely, Paraguay and Peru.

These differences -- and their significance and reconciliation -- must stand unexplained until AID provides more explicit information (a) on the character of its data and its reasons for preferring data gathered directly in the field to published data, and (b) on how it handles inflation, deflation, conversion of local currencies to U.S. dollars, and the like.

Considering the uncertainties and difficulties of making Latin American defense-expenditure estimates, the author is mildly satisfied with the limited differences that emerge in this fourth credibility check. Further research on the sources and manner of manipulation

of the AID data, it is believed, has a fair probability of bringing the expenditure estimates (at least fo. the early 1960s and thereafter) closer together, thereby raising the confidence levels for both sets of estimates.

A fifth test was conducted -- not a credibility check but rather an examination of the sensitivity of results to the use of different deflators and, to a lesser extent, to the use of actual rather than projected defense expenditures. For example, in the worksheets underlying Table 5 of Charles Wolf's study [35] one finds differences from the data of the present Memorandum in the annual estimates for the fourteen countries studied by him for the years 1950-1960 (inclusive). That the differences occur is largely because of changes in the method of deflating local currencies. Wolf, wherever possible, used the wholesale price index of each country as the deflator; where there were gaps in the wholesale price index, the mixed-basket consumers' price index was used; and, finally, in a few very rare cases, resort was had to the food-only price index of a particular country. Given the time span of the Wolf study (1950-1960), conceptually and practically this was a reasonable thing to do: conceptually because defense establishments buying in their own countries presumably buy at close to the wholesale prices; and practically because, for most countries, wholesale price indexes only began to become available in the early 1950s. But given the time horizon of the present study (that is, 1938-1965), it was necessary as a practical matter (as noted earlier) to use the longest-span and most widely available deflator, the food-only price index. Although this index has the advantage of being a consistent deflator, it tends to overestimate the magnitude of defense expenditures. (The sensitivity of defense-expenditure analyses to the choice of price index deflator is examined in detail in Appendix E.)

Beyond these five limited credibility checks, no further verification seems to be possible until detailed country-by-country studies are available which cover an extended period of time.

Appendix G

SOME COMPARISONS OF DEFENSE APPROPRIATIONS AND
ACTUAL DEFENSE EXPENDITURES, 1950-1965

INTRODUCTION

In the United Nations Statistical Yearbook, five types of defense expenditures appear and are carefully distinguished as such. These five are cited as follows: "The letters PR indicate provisional results, the letters RE indicate revised estimates, the letter E means voted estimates, and the letters DE mean draft estimates submitted to Parliament. Otherwise the figures relate to the closed accounts."[1]

Given the sharp distinction between closed-account entries in the various issues of the Statistical Yearbook (that is, unannotated, final total defense expenditures for the year), entries annotated with an E (that is, appropriations for defense voted on by the parliaments of the various Latin American countries), and other annotated entries, it is possible to make a numerical analysis, for some countries, of the relationship between appropriated defense budgets and actual year-end defense expenditures.

This comparison was undertaken for twelve countries for the fifteen-year period 1950-1965. For some countries, the comparison was not worth undertaking: For example, all entries for Haiti are vague estimates, and in Costa Rica the size of the military has been so limited, constitutionally, since 1948 that voted expenditures and actual expenditures are definitionally identical, within insignificantly small margins. For these and other reasons, the comparison was limited to only twelve countries.

Furthermore the comparison was not pushed back farther than 1950 because of the blurrings that then tend to occur between the various distinctions. Earlier than 1950, the confidence that "E's" are voted appropriations rather than someone's estimates (formed on an inexplicit basis) becomes too low to promise meaningful results.

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[1][28, 1965; p. 596], emphasis added. See the discussion in Appendix A.

Tables G-1 and G-2, below, summarize the numerical differences between appropriated and actual expenditures for the twelve countries examined. Although in the majority of the cases the basis for the comparison was "E" or voted appropriations, a few exceptions had to be made. In the following cases, the annotation shown at the right was used in lieu of E:

Argentina:	1962	DE
Brazil:	1960	DE
	1963	RE
Chile:	1957	DE
Colombia:	1963 1964 1965	RE
Ecuador:	1961 1962 1963 1964 1965	PR
Peru:	1964	DE
Venezuela:	1948 1949 1950 1951 1960	PR
Honduras:	1956 1957	PR
Mexico:	1949	PR
	1953 1959	DE

With these exceptions, closed-account (that is, final year-end) expenditures were compared with all entries specifically annotated as "voted" (that is, parliament-approved) budgets. Since, to our knowledge, in most countries DEs (that is, draft-estimate budgets submitted by the executive branch of the government) eventually became Es of the same magnitude, the exceptions to our comparison scheme may be even smaller than indicated above, where some six DEs are recorded.

The objectives of the presentations below are to shed light on the relationship between voted and actual Latin American defense expenditures as reported in the Statistical Yearbook, and to suggest, from a study of historical trends, adjustment factors that might be useful to analysts working with the Statistical Yearbook in estimating probable "actual" defense expenditures for future years.

To simplify the presentation, our findings are summarized under two headings: (1) cases in which actual expenditures typically exceeded voted expenditures, and (2) cases in which final expenditures typically fell short of voted expenditures.

CASES WHERE ACTUAL EXPENDITURES EXCEEDED
VOTED EXPENDITURES

The following observations draw on data in Table G-1:

o Without fail, all the countries examined, in all the years, spent at least what was appropriated and in many cases significantly more.

o The overruns ranged from zero in Guatemala in 1954 to 113 percent in Colombia in 1962.

o In the case of Guatemala, the difference was small (never higher than 8 percent) and most of the time practically non-existent. If present trends continue, the analyst working with Statistical Yearbook data can, with reasonable assurance, assume that voted expenditures will remain close to actual expenditures.

o In Honduras, the gap declined progressively from 50 percent in 1950 to nearly zero in 1957-1960. There were two big gaps in 1961 and 1962 (89 and 91 percent, respectively); in the remaining three years there was virtually no gap at all. Like Guatemala, Honduras seems to be bringing its expenditures closely in line with its appropriations. Thus, if present trends continue, the analyst can, with reasonable assurance assume that voted expenditures will remain close to actual expenditures.

o In Argentina, the width of the gap has been erratic. The average overrun for the fifteen-year period was 45 percent; for 1960 to 1965 it declined to an annual average of 14 percent; but the gap for the last of

Table G-1

SAMPLE OF LATIN AMERICAN COUNTRIES WHERE ACTUAL DEFENSE EXPENDITURES TYPICALLY EXCEEDED "VOTED" (OR ESTIMATED) DEFENSE EXPENDITURES, 1950-1965

(Overrun expressed as a +%)

Year	Argentina	Brazil	Colombia	Guatemala	Honduras
1950	+17%	trivial	+16%	--[a]	no change
1951	+73%	no change	+35%	+8%	+50%
1952	+9%	+12%	+43%	+2%	+35%
1953	+50%	+19%	+70%	+3%	+36%
1954	+69%	+14%	+29%	trivial[b]	+21%
1955	+45%	+46%	+25%	+1%	+28%
1956	+7%	+41%	+18%	no change	+25%
1957	+10%	+2%	+11%	+1%	no change
1958	+23%	+1%	+11%	+3%	no change
1959	+6%	+7%	no change	no change	no change
1960	+3%	+28%	+1%	no change	no change
1961	no change	+17%	+49%	no change	+89%
1962	+24%	+12%	+113%	no change	+91%
1963	no change	no change	+38%	+6%	no change
1964	+16%	+15%	+15%	no change	no change
1965	+40%	--	+13%	--	no change

NOTES:

[a] -- Data missing.

[b] Actually, a very slight underrun.

these years was 40 percent. Accordingly, analysts
working with Statistical Yearbook data on current and
future Argentinian defense expenditures should increase
voted expenditures reported there by ~15 percent to
reflect probable increases in year-end actual expenditures.

In this connection, it is interesting to note that
the years of great internal turmoil in Argentina --
1954 and 1955 -- were preceded and accompanied by the
largest excesses, for that country, of actual over
appropriated expenditures. In looking at the 1965
excess, one cannot but wonder if the tendency to large
overruns is not an indication of upheavals to come, or
of present upheavals to be suppressed, at costs higher
than those originally approved by the legislative branch.

o In Brazil, although there were a few years of very wide
  gaps (for example, 1955 and 1956 -- years of intense
  internal political upheaval),[1] the average annual
  overrun approximated 15 percent. Thus, until further
  and better empirical data become available, Brazilian
  voted expenditures should be inflated by ~15 percent
  to give year-end expenditures.

o In Colombia, the incidence of overrun was most erratic.
  From practically zero in 1959 and a 1 percent change in
  1960, the overrun rose to as high as 113 percent in
  1962. (This, incidentally, was not a year of internal
  political upheavals or border conflicts.) Given
  Colombia's expenditure patterns in the 1960s, analysts
  using Statistical Yearbook data on Colombia should
  inflate voted expenditures by ~40 percent to approxi-
  mate actual expenditures.

It is necessary to emphasize that Colombia's
appropriated-vs.-actual expenditure data are more
than usually complex. For example, in relating
material in Table G-1 to material in Appendix B, one
is struck by the fact that the 1953 upheaval in
Colombia was accompanied by a 70 percent overrun,
preceded by a 43 percent overrun, and followed by a
declining overrun. In the 1957 upheaval, there was
very little overrun before or at the time of Rojas
Pinilla's forced resignation; this event was followed
by two years of a close identity of appropriated and
spent defense money.

Why these excesses occur is an interesting question. Part of
the answer may be the sequential nature of the appropriation procedures

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[1] See Appendix B.

in Latin American (and other) countries and the reporting procedures
to the United Nations. For example, in Colombia it is well known that
the legislative body that considers and passes upon defense appropria-
tions is required by law to act upon them at an early date. Subse-
quently, it debates and acts upon supplementary appropriations requests.
Now if the Statistical Yearbook reports "E" entries on the basis of
these mandatory initial legislative movements, then "final" published
expenditures will almost certainly exceed voted expenditures. The net
result of this action and reporting process is to give a spurious
picture of the discrepancy between Colombian voted appropriations and
actual expenditures. A similar situation probably holds in Brazil,
but to a lesser degree.

Another part of the answer may be the transfer of money from
secret presidential funds, deliberately obscured appropriations, or
the like. In this area, one must remain sceptical as to how much suc-
cess the research and analysis of published indigenous country literature
can have. Still, much could be learned if the Statistical Yearbook
were more specific on what is meant by voted defense expenditures.

CASES WHERE ACTUAL EXPENDITURES FELL BELOW
VOTED EXPENDITURES

Table G-2 summarizes the findings for seven countries (Chile,
Ecuador, Peru, Venezuela, El Salvador, Guatemala, and Mexico) where
the defense establishments frequently, and by significant percentages,
spent less than was appropriated to them.

Before proceeding to the expenditure experience within individual
countries, it is necessary to take note of the concept of "obligational
authority" (or "earmarked funds"). Typically, in the United States,
money is appropriated in a particular year to finance a defense project
that will take several years to complete and accordingly will be paid
for in appropriate yearly increments. As a result, at the end of any
given year total appropriations will frequently exceed total actual
expenditures. Thus, if one were not aware of the obligational-authority
arrangement, one would erroneously conclude that the defense establish-
ment was spending less than what was appropriated to it.

Table G-2

SAMPLE OF LATIN AMERICAN COUNTRIES WHERE ACTUAL DEFENSE EXPENDITURES SOMETIMES EXCEEDED AND SOMETIMES FELL BELOW "VOTED" (OR ESTIMATED) DEFENSE EXPENDITURES, 1950-1965

(Amount of overrun expressed as a +% and amount of underrun as a -%)

Year	Chile	Ecuador	Peru	Venezuela	El Salvador	Guatemala	Mexico
1950	-12%	[a]	+13%	-6%	+16%	+8%	-3%
1951	+1%	--	+15%	+4%	+4%	+2%	+6%
1952	--	--	+7%	+9%	-4%	+3%	-4%
1953	+72%	--	--	+6%	+18%	-10%	+1%
1954	+32%	--	-7%	+4%	+12%	+12%	-38%
1955	+67%	--	trivial[b]	-3%	-2%	no change	-21%
1956	+17%	--	+35%	+13%	+12%	+1%	-19%
1957	+32%	--	no change	-30%	+5%	+3%	trivial[c]
1958	trivial[b]	--	+3%	-9%	+3%	--	-2%
1959	no change	-16%	-11%	trivial[b]	-8%	--	-9%
1960	-2%	-10%	--	+5%	-8%	--	-6%
1961	trivial[c]	-11%	--	-15%	--	--	trivial[c]
1962	-2%	+7%	--	-3%	-6%	+6%	trivial[c]
1963	-9%	no change	no change	+1%	-10%	no change	-7%
1964	+14%	+5%	no change	+2%	-16%	--	no change
1965	+5%	no change	--	+6%	-7%	--	no change

NOTES:

[a] -- Data missing.

[b] Down by a very slight amount.

[c] Up by a very slight amount.

The author has no first-hand knowledge that such legislative arrangements exist in Latin American countries -- or, if they exist, in what countries or under what specific arrangements. Lacking such data, the author has attempted to test for the possible existence of such an arrangement by examining the data itself with the following hypothesis in mind: If obligational-authority arrangements existed, one would expect (a) that underruns (that is, actual expenditures in any given year or sequence of years totaling less than appropriations for the same year or sequence of years) would be followed by overruns in subsequent years, and (b) that over periods of five to ten years the underruns and overruns would tend to cancel out.

The exploration led to the following findings:

o In the case of Mexico, it is unlikely that obligational-authority arrangements exist. Beginning in 1954, Mexico has frequently incurred sizable underruns uncompensated by overruns.

o In Chile, it is possible that such arrangements do exist. In the 1960s, underruns totalled $14.2 million, overruns totalled $15.4 million, and the overruns occurred after the underruns.[1]

o In Ecuador, it is also possible that such arrangements exist. In the 1960s, underruns totalled $5.0 million, overruns totalled $2.2 million, and the overruns occurred after the underruns.

o In Venezuela, it is possible that such arrangements have existed from 1960 or 1961. (The latter date seems more reasonable in view of the fact that in January of that year a new constitution was promulgated.) In the 1960s (but omitting that year because it was an over-run year), underruns totalled $22.3 million, overruns totalled $18.2 million, and the overruns followed the underruns. The earlier history of Venezuelan defense expenditures suggests that such legislative arrange-ments, as noted, did not exist before 1960 or 1961. For example, the underruns of 1957, 1958, and 1959 totalling $63.4 million were followed by a single year (1960) of an overrun of only $8.1 million, which was followed in turn by two years of underruns totalling another $22.3 million.

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[1] Work currently underway at RAND, but not yet completed, suggests that such arrangements are indeed part of Chilean legislative procedures and rules.

In summary then, if the underlying hypothesis for testing purposes is valid, the most that can be said is that obligational-authority arrangements probably do not exist in Mexico, but possibly exist in Chile, Ecuador, and Venezuela. Mindful of the tentative nature of these findings, the author believes that research on laws relating to the appropriations process (with particular attention to obligational-authority arrangements) would make a significant contribution to better understanding of the defense establishments of selected Latin American countries.

With these reservations about the effects of possible obligational-authority arrangements, we proceed to the following observations on the data in Table G-2:

o Mexico rarely spent more than was voted (only 6 percent in 1951 and 1 percent in 1953); it consistently spent almost exactly what was appropriated -- or underspent. In the fifteen-year period, Mexico underspent its appropriations nine times, by amounts ranging from 1 percent to 38 percent (1954) -- an average annual underrun of ~12 percent. In 1964 and 1965 Mexico appears to have spent exactly what was appropriated.

Lacking more information, it would seem (a) that, in the years examined, the legislature worked closely and constrainingly with the Mexican defense establishment, and (b) that the defense establishment in recent years has reached the point where it fully expends what has been appropriated to it. If recent trends continue, analysts working with Statistical Yearbook data can, with reasonable assurance, assume that actual expenditures will remain close to voted expenditures.

o Venezuela both overspent and underspent its voted funds. Its highest overrun was 13 percent in 1956, and its average overrun was about 6 percent. Its underruns were as much as 30 percent in 1957, and averaged ~11 percent.[1] In 1963-1965, Venezuela consistently overspent slightly at a rising rate (1, 2, and 6 percent, respectively, for the three years). Accordingly, the analyst seeking to project actual defense expenditures should be cautious. On the basis of recent trends, an upward adjustment factor of ~5 percent might be used, but only with reservations.

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[1]See the earlier discussion in this section on the possibility of the existence of obligational-authority arrangements in Chile, Ecuador, and Venezuela.

ɔ Chile is another difficult case. For the years studied,
   the net of appropriated and actual expenditures ranged
   from an overrun of 72 percent in 1953 to an underrun of
   9 percent in 1963,[1] with no clear pattern emerging. As
   in the case of Venezuela, the analyst should be cautious.
   On the basis of recent trends, an upward adjustment
   factor of ∼10 percent might be used, but only with
   reservations.

o El Salvador, which did not exceed voted expenditures by
   any appreciable margin (+18 percent in 1953 being the
   largest overrun), since 1959 consistently spent less
   than appropriated by an average annual figure of ∼9
   percent. Accordingly, by present trends, the analyst
   wishing to project Statistical Yearbook voted expendi-
   tures into actual expenditures should apply a downward
   adjustment factor of ∼10 percent.

o In Ecuador,[1] despite its several years of underruns
   followed by a "no change," a small overrun, and then
   a "no change" again, it is our feeling that, unless a
   new pattern emerges, actual expenditures will turn out
   to be roughly the same as, or probably no more than
   5 percent larger than, voted expenditures.

o In Peru, unless recent trends change, one can probably
   assume that expenditures will continue to equal voted
   expenditures.

o Finally, in Guatemala, where one underrun occurred (1953)
   and the overruns did not exceed 12 percent, one can
   probably safely assume either that final expenditures
   will equal voted expenditures or that they will exceed
   them by only ∼5 percent.

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[1]See the earlier discussion in this section on the possibility of
the existence of obligational-authority arrangements in Chile, Ecuador,
and Venezuela.

BIBLIOGRAPHY

1. Aviation Studies (Int'l), Ltd. <u>Air Force and Naval Air Statistical Record</u>, London, as amended to April 10, 1956; also to June 30, 1966.

2. Willard F. Barber and C. Neale Ronning, <u>Internal Security and Military Power</u> (Columbus, Ohio: Ohio State University Press, 1966).

3. Abraham Becker, <u>Soviet Military Outlays Since 1955</u>, The RAND Corporation, RM-3886-PR, June 1964.

4. William Benton, <u>The Voice of Latin America</u> (New York: Harper, 1961).

5. H. Roberts Coward, <u>Military Technology in Developing Countries</u>, Center for International Studies, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1964, Appendix II, various pages.

6. Luigi Einaudi and Herbert Goldhamer, <u>An Annotated Bibliography of Latin American Military Journals</u>, The RAND Corporation, RM-4890-RC, December 1965.

7. Milton S. Eisenhower, <u>The Wine Is Bitter</u> (Garden City, New York: Doubleday, 1963).

8. Lawrence L. Ewing and Robert C. Sellers (eds.), <u>The Reference Handbook of the Armed Forces of the World, 1966 Edition</u>, Robert C. Sellers and Associates, Universal Building, Washington, D.C., 1966, various pages.

9. International Monetary Fund, <u>International Financial Statistics</u>, Washington, D.C., XIX:10 (October 1966), p. 25.

10. Geoffrey Kemp, "Rearmament in Latin America," <u>The World Today</u>, XXIII:9 (September 1967), pp. 375-384.

11. Boris Kozolchyk, <u>Legal Aspects of the Acquisition of Major Weapons by Six Latin American Countries</u>, The RAND Corporation, RM-5349-1-ISA, December 1967.

12. _____, <u>Legal Foundations of Military Life in Colombia</u>, The RAND Corporation, RM-5172-PR, February 1967.

13. <u>Latin American Times</u>.

14. Edwin Lieuwen, <u>Arms and Politics in Latin America</u> (New York: Praeger, 1961).

15. _____, <u>Generals vs. Presidents</u> (London: Pall Mall Press, 1964).

16. _____, "Militarism and Politics in Latin America," in John J. Johnson (ed.), <u>The Role of the Military in Underdeveloped Countries</u> (Princeton: Princeton University Press, 1962), pp. 157-158.

17. Edwin Lieuwen, <u>Venezuela</u>, Royal Institute of International Affairs (London: Oxford University Press, 1965).

18. Raul C. Migone (Director) <u>et al</u>., <u>Interamerican Statistical Yearbook</u> (New York: Macmillan, 1940).

19. Maurice J. Mountain, "The United States and Latin America: A Political and Military Appraisal," <u>Marine Corps Gazette</u>, September 1965, pp. 19-20.

20. Pan American Union, Department of Statistics, <u>América en Cifras</u> (Washington, D.C.: 1961, 1963, and 1965 editions).

21. George Pendle, <u>Argentina</u> (London: Oxford University Press, 1963).

22. D. H. Radler, <u>El Gringo</u> (New York: Milton, 1962), pp. 149-150.

23. Samuel Shapiro, <u>Invisible Latin America</u> (Boston: Beacon Press, 1963).

24. <u>Statesman's Yearbook</u> (various editions), St. Martin's Press, New York.

25. William S. Stokes, <u>Latin American Politics</u> (New York: Crowell, 1959).

26. United Nations, <u>Demographic Yearbook</u> (various editions), Statistical Office of the United Nations, Department of Economic and Social Affairs, New York.

27. United Nations, Department of Economic and Social Affairs, <u>Economic and Social Consequences of Disarmament</u> (E/3593/Rw. 1), New York, 1962.

28. United Nations, <u>Statistical Yearbook</u> (various editions), Department of Economic and Social Affairs, New York.

29. U.S. Army, Special Operations Research Office of the American University (Foreign Area Studies Division), <u>U.S. Army Area Handbook for Venezuela</u> (Washington, D.C.: Government Printing Office, 1964), p. 535.

30. U.S. Department of State, Agency for International Development, <u>AID Economic Data Book, Latin America</u> (various editions), Statistics and Reports Division, Washington, D.C.

31. U.S. House of Representatives, Subcommittee of the Committee on Appropriations, <u>Foreign Operations Appropriations for 1965</u>, 88th Congress, 2nd Session, Government Printing Office, Washington, D.C., 1964, Part , p. 515.

32. U.S. Senate Committee on Foreign Relations, <u>Nomination of Lincoln Gordon To Be Assistant Secretary of State for Interamerican Affairs</u>, 89th Congress, 2nd Session, February 7, 1966, Government Printing Office, Washington, D.C., 1966, pp 68-71.

33. U.S. Senate Committee on Foreign Relations, Subcommittee on Disarmament, <u>Control and Reduction of Armaments: Disarmament and Security in Latin America</u>, 85th Congress, 1st Session, Staff Study No. 7, Government Printing Office, Washington, D.C., 1957, p. 14.

34. A. Curtis Wilgus and Raul D'Eca, <u>Latin American History</u> (New York: Barnes and Noble, 1964).

35. Charles Wolf, Jr., <u>The Political Effects of Military Programs: Some Indications from Latin America</u>, The RAND Corporation, RM-3676-ISA, June 1963.

36. _____, <u>The Political Effects of Economic Programs: Some Indications from Latin America</u>, The RAND Corporation, RM-3901-ISA, February 1964.

37. David Wood, <u>Armed Forces in Central and South America</u>, Adelphi Papers, Number thirty-four (April 1967), The Institute for Strategic Studies, London WC.2, 1967, various pages.

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An analysis of Latin American defense expenditures, 1938-1965. The study is based on data published in the United Nations Statistical Yearbook. All data have been reduced to constant 1960 U.S. dollars. Defense spending reached a peak level of $1.4 billion in 1958, declined thereafter to about $1.2 billion, and turned upward in 1964 and 1965 to about $1.4 billion. Contrary to the commonly held view that Latin American defense spending has increased tremendously since the late 1930s, these measurements suggest at most a doubling--significantly less than the increase experienced by other countries. The hypothesis that Latin American defense spending is importantly affected by domestic political instability and fears of border conflicts is examined. Suggestions are made for future research and for improving the data reporting system of the Agency for International Development.	Latin America Defense Economics--Foreign Weapons (General) Less-developed countries